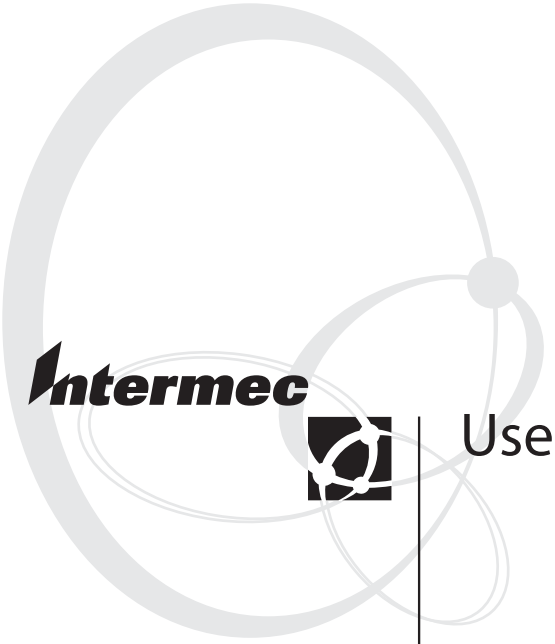
Intermec

User's Manual

CN3 Series Mobile Computer



Intermec

User's Manual

CN3 Series Mobile Computer

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This product includes cryptographic software written by Eric Young (EAY@cryptsoft.com).

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Document Change Record

This page records changes to this document. The document was originally released as Revision 001.

Version Number	Date	Description of Change
002	01/2007	Added information about the InstallSelect application, the clean boot method, the color camera, and the CDMA radios.
003	04/2007	• Added information about GPS. • Added information about using the FTP server. • Created an appendix for specifications and accessories.
004	07/2007	• Added information on GPSID and the iGPS Settings application. • Added information on the Power Profiler application. • Added undocumented keys to the keypad tables.
005	10/2007	Added information on the larger key CN3e Mobile Computer.
006	1/2008	• Added information on CN3e alphanumeric keypad. • Updated information on CDMA carriers and activation. • Updated Power Profiler information. • Revised the section on keypads to reduce repetition.

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Before You Begin

This section provides you with safety information, technical support information, and sources for additional product information.

Safety Information

Your safety is extremely important. Read and follow all warnings and cautions in this document before handling and operating Intermec equipment. You can be seriously injured, and equipment and data can be damaged if you do not follow the safety warnings and cautions.

This section explains how to identify and understand warnings, cautions, and notes that are in this document.

A warning alerts you of an operating procedure, practice, condition, or statement that must be strictly observed to avoid death or serious injury to the persons working on the equipment.

A caution alerts you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.

Note: Notes either provide extra information about a topic or contain special instructions for handling a particular condition or set of circumstances.

Global Services and Support

Warranty Information

To understand the warranty for your Intermec product, visit the Intermec web site at www.intermec.com and click **Support** > **Returns and Repairs** > **Warranty**.

Disclaimer of warranties: The sample code included in this document is presented for reference only. The code does not necessarily represent complete, tested programs. The code is provided "as is with all faults." All warranties are expressly disclaimed, including the implied warranties of merchantability and fitness for a particular purpose.

Web Support

Visit the Intermec web site at www.intermec.com to download our current manuals (in PDF). To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

Visit the Intermec technical knowledge base (Knowledge Central) at www.intermec.com and click **Support** > **Knowledge Central** to review technical information or to request technical support for your Intermec product.

Telephone Support

These services are available from Intermec.

Services	Description	In the USA and Canada call 1-800-755-5505 and choose this option
Order Intermec products	• Place an order. • Ask about an existing order.	1 and then choose 2
Order Intermec media	Order printer labels and ribbons.	1 and then choose 1
Order spare parts	Order spare parts.	1 or 2 and then choose 4
Technical Support	Talk to technical support about your Intermec product.	2 and then choose 2
Service	• Get a return authorization number for authorized service center repair. • Request an on-site repair technician.	2 and then choose 1
Service contracts	• Ask about an existing contract. • Renew a contract. • Inquire about repair billing or other service invoicing questions.	1 or 2 and then choose 3

Outside the U.S.A. and Canada, contact your local Intermec representative. For technical support in South Korea, see the next section. To search for your local representative, from the Intermec web site, click **Contact**.

Service Location Support

For technical support in South Korea, use the after service locations listed below:

AWOO Systems
102-1304 SK Ventium
522 Dangjung-dong
Gunpo-si, Gyeonggi-do Korea, South 435-776
Contact: Mr. Sinbum Kang
Telephone: +82-31-436-1191
Email: **sbkang@awoo.co.kr**

Sammi Information Systems Co Ltd
7-9FL, Seo Jo Building
103-15, Galwor-Dong
Seoul, Yong San-ku Korea, South 140-807
Contact: Kyung-Hee Koo
Telephone: +82-2-790-5508
Email: **jlovekoo@sammicomputer.co.kr**

Who Should Read This Manual

This manual is written for the person who is responsible for installing, configuring, and maintaining the CN3 and CN3e Mobile Computer.

This manual provides you with information about the features of the CN3 and CN3e, and how to install, configure, operate, maintain, and troubleshoot it.

Before you work with the CN3 or CN3e, you should be familiar with your network and general networking terms, such as IP address.

Related Documents

This table contains a list of related Intermec documents and their part numbers.

Document Title	Part Number
Intermec Computer Command Reference Manual	073529-xxx
TE 2000 Terminal Emulation Programmer's Guide	235-099-001

The Intermec web site at **www.intermec.com** contains our documents (as PDF files) that you can download for free.

To download documents

1. Visit the Intermec web site at **www.intermec.com**.
2. Click **Support** > **Manuals**.
3. In the **Select a Product** field, choose the product whose documentation you want to download.

To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

Patent Information

Product is covered by one or more of the following patents:

4882476; 4894523; 4953113; 4961043; 4970379; 4988852; 5019699; 5021642; 5038024; 5081343; 5095197; 5144119; 5144121; 5182441; 5187355; 5187356; 5195183; 5216233; 5216550; 5195183; 5195183; 5218191; 5227614; 5233172; 5241488; 5243602; 5258606; 5278487; 5288985; 5308966; 5322991; 5331136; 5331580; 5342210; 5349678; 5359185; 5371858; 5373478; 5389770; 5397885; 5410141; 5414251; 5416463; 5442167; 5464972; 5468947; 5468950; 5477044; 5486689; 5488575; 5500516; 5502297; 5504367; 5508599; 5514858; 5530619; 5534684; 5536924; 5539191; 5541419; 5548108; 5550362; 5550364; 5565669; 5567925; 5568645; 5572007; 5576529; 5592512; 5594230; 5598007; 5608578; 5616909; 5619027; 5627360; 5640001; 5657317; 5659431; 5671436; 5672860;

5684290; 5719678; 5729003; 5742041; 5761219; 5764798; 5777308; 5777309; 5777310; 5786583; 5793604; 5798509; 5798513; 5804805; 5805807; 5811776; 5811777; 5818027; 5821523; 5828052; 5831819; 5834753; 5834749; 5837987; 5841121; 5842070; 5844222; 5854478; 5862267; 5869840; 5873070; 5877486; 5878395; 5883492; 5883493; 5886338; 5889386; 5892971; 5895906; 5898162; 5902987; 5902988; 5912452; 5923022; 5936224; 5949056; 5969321; 5969326; 5969328; 5979768; 5986435; 5987192; 5987499; 5992750; 6003775; 6012640; 6016960; 6018597; 6024289; 6034379; 6036093; 6039252; 6064763; 6075340; 6095422; 6097839; 6102289; 6102295; 6109528; 6119941; 6128414; 6138915; 6149061; 6149063; 6152370; 6155490; 6158661; 6164542; 6164545; 6173893; 6195053; 6234393; 6234395; 6244512; 6249008; 6328214; 6330975; 6345765; 6356949; 6367699; 6375075; 6375076; 6375344; 6431451; 6435411; 6484944; 6488209; 6497368; 6532152; 6538413; 6539422; 6621942; 6641046; 6681994; 6687403; 6688523; 6732930

Docking Station/Device

5052943; 5195183; 5317691; 5331580; 5544010; 5644471

There may be other U.S. and foreign patents pending.

1 Using the Computer

This chapter introduces the CN3 and CN3e Mobile Computers with Windows® Mobile® 5.0. It also contains hardware and software configuration information to assist you in getting the most out of your computer.

Introducing the CN3 Mobile Computer

The Intermec CN3 and CN3e Mobile Computers are ergonomically designed mobile computers built on the Microsoft Windows Mobile 5.0 operating system. They are lightweight, easy-to-use, and run most software developed for the Windows Mobile platform, including standalone, client-server, and browser-based applications.

The CN3 and CN3e support similar feature sets. The CN3e offers extended environmental specifications and larger keys for data intensive applications. The CN3 Series of mobile computers includes both the CN3 and CN3e computers. Throughout this manual, both versions of the computer are referred to as CN3 or CN3 Series.

CN3 and the CN3e Mobile Computer

The CN3 Mobile Computer with an IEEE 802.11b/g radio installed is Wi-Fi® certified for interoperability with other 802.11b/g wireless LAN devices.

The CN3 and CN3e are available with the following features:

- 802.11b/g radio standard
- Bluetooth® radio standard

- 128 MB RAM
- QWERTY or numeric keypads
- Imaging Options:
  - EA11 Standard Area Imager
  - Color Camera
- Wireless Wide Area Network Options:
  - GSM/GPRS/EDGE
  - CDMA/1xRTT/EV-DO

Use this manual to understand how to use the features and options available on the CN3 and CN3e.

What's New?

This version of the manual contains these changes:

- Addition of the CN3e alphanumeric keypad.
- Updated information on CDMA carriers and phone activation.

Finding the Software Build Versions

You can easily check to see what version of the operating system and the SmartSystems Platform Bundle (SSPB) are loaded on your CN3.

To find your operating system version

1 Tap **Start** > **Internet Explorer**.

2 Tap the **Intermec** logo. The Intermec page appears and displays the software build information.

Using the Battery

The CN3 uses an AB8, AB9, AB15, or AB16 Lithium-ion (Li-ion) battery as its main power source. The CN3e uses an AB9 or AB16 extended battery for the main power source. Standard batteries have 8.1 Watt hours capacity and extended batteries have 14.8 Watt hours capacity. You must fully charge the battery before you can use the CN3.

When you change the battery, an internal super capacitor maintains your status, memory, and real-time clock for approximately 5 minutes.

The battery used in this device may present a fire or chemical burn hazard if it is mistreated. Do not disassemble it, heat it above 100°C (212°F) or incinerate it.

If you fail to replace the low battery immediately, you may lose important data or applications.

Note: If the CN3 is not on external power and you remove the battery pack, it goes into Suspend mode.

Dispose of used batteries promptly. Keep away from children. Contact your Intermec representative for replacement batteries.

Several factors determine the life of your battery such as extreme temperatures, input devices, and your usage. When you change the battery, an internal super capacitor maintains your status, memory, and real-time clock for approximately 5 minutes.

Charging the Battery

The battery pack should be fully charged before you use the CN3 for the first time. If temperatures are within the battery charging range of 0° to 40°C (32° to 104°F), the standard battery pack takes up to four hours to charge; the extended battery pack takes up to five hours.

The battery is fully charged when its battery status LED shows a steady green.

To charge the battery

- Insert the battery into a quad battery charger, a single dock, or attach external power to the CN3 with the battery installed. For information on these accessories, see "Accessories" on page 131.

Use the next table to understand how long it will take to charge your batteries in some of the CN3 charging accessories.

Charging Times for CN3 Batteries

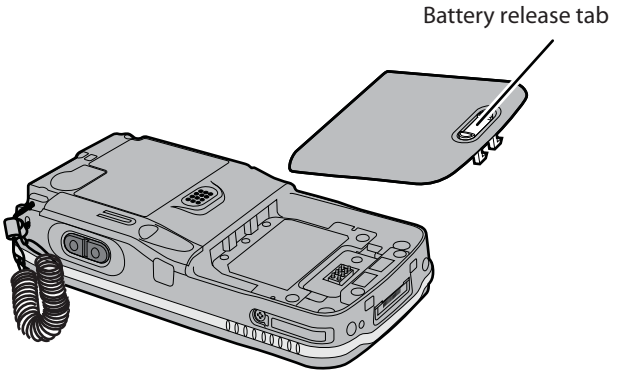
Charging Accessory	Model	Charging time
CN3 Quad Battery Charger	AC14	5 hours or less
CN3 Single Dock	AD10	5 hours or less

Removing and Installing the Battery

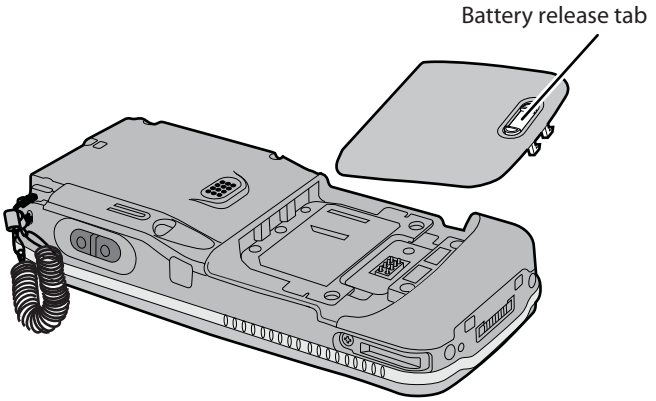
To maximize the time allowed to replace the main battery pack, put the CN3 in a suspend mode before removing the battery pack.

To remove and install the battery

1. Press and hold the Power button for about 2 seconds until the CN3 turns off.
2. Press the battery release tab to the left until the battery releases, and then lift it away from the CN3.

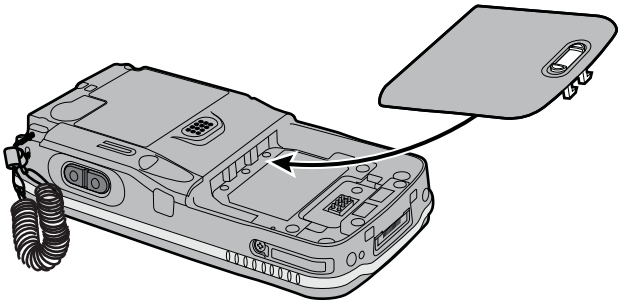


Removing the Battery in a CN3



Removing the Battery in a CN3e

3 Align the battery contacts and insert the battery.



4 Press down on the battery until it clicks into place.

Maximizing Battery Life

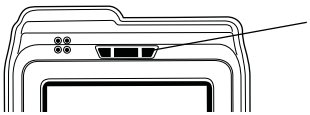
Batteries are chemical devices. If the batteries are left sitting on a shelf for long periods of time outside the CN3, the batteries slowly discharge, eventually to zero if left uncharged. The battery chemistry resists normal degradation if you store the battery in a charger as opposed to leaving the battery in a discharged state. See the following table for tips you can do to maximize the life of your battery.

Battery Conservation Tips

When You Want To:	Do This to Save Battery Power:
Operate the CN3 and the Low Battery status icon appears or the Battery light comes on.	Press the power button to turn off the CN3. Remove the battery and insert another fully charged battery within five minutes or you may lose data. Or, you can connect the CN3 to an external power source.
Stop using the CN3 for five minutes or longer.	Make sure the low battery icon is not on the screen and that the Battery light is not turned on. Press the power button to turn off the CN3.
Store the CN3 for more than a day.	If you are storing the CN3 for a few days, like over the weekend, install the charged battery or attach the CN3 to a power source. If you are storing the CN3 for longer, remove and charge the battery, then store both the battery and the CN3 in a cool location. If the battery in storage is not used in several months, you should recharge the battery to keep it at its performance peak.
Store the battery outside the CN3.	Store the batteries in a charger.

Checking the Battery Status

The Battery Status LED above your CN3 display, as shown in the following illustration, indicates the status of your battery. See the following table to understand the meanings of the lights emitted from the LED.



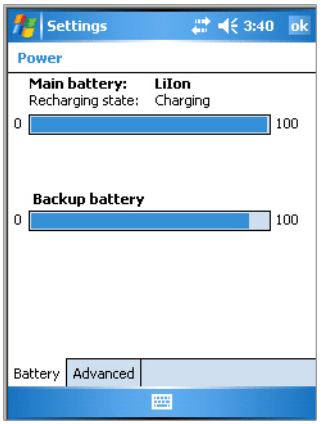
Understanding the Battery Status LED

Battery Status	Description
Steady green	The battery is more than 95% charged and CN3 is on a charger.
Blinking red	The battery is low. CN3 goes into Suspend mode. Charge or replace the battery.
Steady red and the CN3 is attached to external power.	The battery is charging.
Steady red and the CN3 is **not** attached to external power.	The software is not working properly.
Steady amber	The battery is missing or is unable to charge because the temperature is outside of the charging range.
Off	The CN3 is not on external power and the battery is operating normally.

You can also check the battery status by using the Power application.

To check the battery status

- Tap **Start** > **Settings** > the **Systems** tab > **Power** > the **Battery** tab.

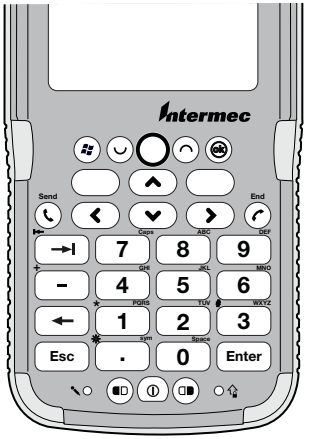


Using the Keypad

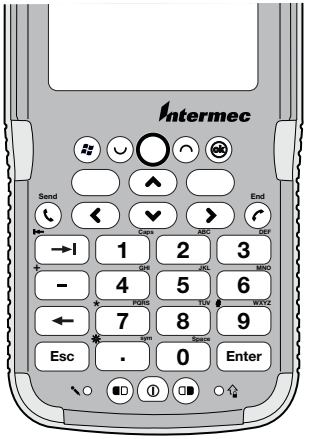
The CN3 can have a QWERTY keypad or numeric keypad. The CN3e supports larger numeric keypads with either a 10-key (7-8-9 on top) or phone style (1-2-3 on top) layout.

CN3 Qwerty Keypad

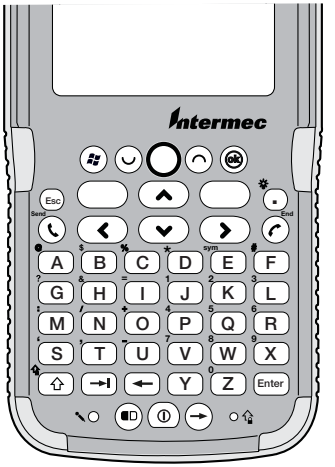
CN3 Numeric Keypad



CN3e Numeric 10-Key Keypad



CN3e Numeric Phone Style Keypad



CN3e Alphanumeric Keypad

The full alphabetic QWERTY keypad and the alphanumeric keypad are for applications that require primary input of alphabetic data. This keypad also provides special characters, numbers, symbols, and functions by pressing color-coded key sequences.

The large numeric keypads are for applications that require mainly numeric data. These keypads also lets you enter special characters, including the alphabet, by pressing color-coded key sequences. The CN3e provides larger input keys better suited for blind entry or glove usage.

Using the Color-Coded Keys

Each keypad available for the CN3 provides color-coded keys to let you access additional characters, symbols, and functions printed on the keypad overlay. Once you understand how to use the color-coded keys and key sequences, you can access all of the additional features printed on the keypad overlay. There are two color-coded modifier keys on the numeric keypad: the orange key and the green key. The QWERTY and alphanumberic keypads have only the orange color-coded modifier key.

Using the Color-Coded Keys

You Want to:	Press:	Example
Use an orange character or function printed above a key.	◼▭ key (LED illuminates) and then the key with the character or function printed above it (LED turns off).	On the CN3 Qwerty keypad, press ◼▭ and then **Q** to type the @ character.
Use a green character or function printed above a key.	▭◼ key (LED illuminates) and then the key with the character or function printed above it (LED turns off).	On the CN3 numeric keypad, press ▭◼ and then **2** to type a lowercase a.
Lock the orange or green key to stay on.	◼▭ or ▭◼ twice.	On the CN3e numeric keypad, press ▭◼ twice and the green LED illuminates and stays on.
Unlock a green or orange key.	◼▭ or ▭◼ once.	Press the ◼▭ or ▭◼ once to unlock the key and turn off the LED.

Capitalizing Characters

To capitalize a single character on QWERTY keypads, press the shift key, and then the character. To type all alphanumeric characters as uppercase letters, you can enable the Caps Lock feature on the CN3 keypad.

To enable Caps Lock

- On the QWERTY keypad, press ◼▭, then the **Shift** key. Press the same key sequence to disable the Caps Lock.
- On the CN3 numeric keypad, press ▭◼ **1**.
- On the CN3e keypads, press ▭◼ ▭◼ **1**.

The Caps Lock LED lights up green to show that the CN3 is in the Caps Lock mode.

To exit Caps Lock

- On the CN3 keypads, press the color modifier key again.
- On the CN3e keypads, press **1**.

Entering Characters on the QWERTY Keypad

There are a few hidden characters on the QWERTY keypad that require using the color-coded keys and the **Shift** key to access. Use the following table to understand how to access these hidden characters on the keypad.

QWERTY Keypad Hidden Characters

To Enter	Press
“	**Shift** **Z**
>	**Shift** **.**
<	**Shift** **X**

Entering Characters on the Numeric Keypads

Above most of the number keys, there is a grouping of three or four characters of the alphabet. For example, above the **2** key there are the letters “ABC.” To access each letter above the key, you press the key one to four times depending on the placement of the letter.

For example, to type the letter “c” you need to

- Press **2 2 2**.

To type a letter on the same key as the last letter entered, wait two seconds, then enter the correct series of keystrokes to create the next letter.

Using the Power Button

When you press the **Power** (⏻) button, you put the CN3 into a lower power mode. In this lower power mode, the CN3 continues to supply power to all memory, but turns off power to most hardware such as the display. This power-saving feature is designed to prolong battery life.

Note: If you do not have a SIM card installed, it may take up to 30 seconds for the CN3 to suspend.

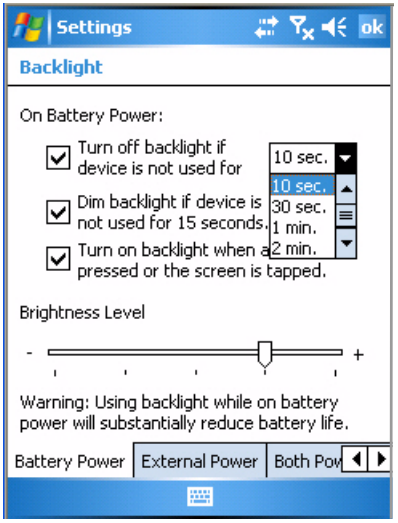
Configuring the Backlight Settings

By default, the CN3 goes into Screen Off mode when there is no activity on the computer. Screen Off mode turns off the backlight and display. Press a key or tap the screen to resume activity.

It is possible to override the backlight settings by changing the power management settings. For more information on configuring power management, see the next section, "Managing Power on the CN3."

To configure the backlight

1. Tap **Start** > **Settings** > the **System** tab > the **Backlight** icon > the **Battery Power** tab.
2. With **Turn off backlight if device is not used for** checked, select the timeout value (10 seconds, 30 seconds, or 1 to 5 minutes).



You can also use Intermec Settings to configure the backlight settings.

Managing Power on the CN3

By default, the CN3 goes into a lower power mode or turns off after two minutes of inactivity. You can press the **Power** button to resume activity at any time. If you would like to manage power based on the usage of your CN3, Intermec provides an application called Power Profiler with three power management profiles:

- Windows Mobile Classic
- Windows Mobile Standard
- Windows Mobile Phone

Understanding the Power Profiler Settings

Power Profiler Setting	Screen Off Enabled	Device Off Enabled
Windows Mobile Classic		X
Windows Mobile Standard (default)	X	X
Windows Mobile Phone	X	

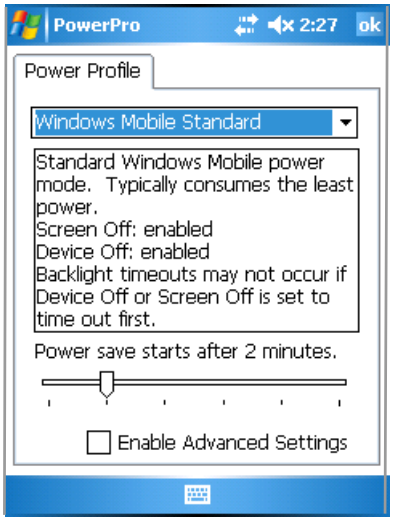
Use the Windows Mobile Classic profile for systems that batch data and upload it several times a day. This profile does not support constant data connections over WAN, LAN, or Bluetooth. It can only maintain data connections when the CN3 is on and all peripherals are enabled. If the screen is off, you do not have any WAN, LAN, or Bluetooth connections, but the CN3 will still receive incoming phone calls. To wake up the CN3 and restore network connections, you need to press **Power** or a **Scan** button.

Use the Windows Mobile Standard profile for applications such as inventory management or terminal emulation applications that power off infrequently. The Windows Mobile Standard profile adds the ability for the system to maintain data connections in a low power state. If the CN3 does not have any activity, the screen will turn off. If there continues to be no activity, the CN3 will eventually turn off the WAN, LAN, or Bluetooth radio connections and enter the Windows Mobile Classic power management profile.

Use the Windows Mobile Phone profile when you have a system that requires network wakeup or you need the CN3 to always be connected to the network. Although the connections are maintained at a low power mode, this setting typically consumes the most power. If the screen turns off, the radios continue to maintain the network connections.

To select a power management profile

1 Tap **Start** > **Settings** > the **System** tab > **Power Profiler**.


PowerPro
2:27
ok
Power Profile
Windows Mobile Standard
Standard Windows Mobile power mode. Typically consumes the least power.
Screen Off: enabled
Device Off: enabled
Backlight timeouts may not occur if Device Off or Screen Off is set to time out first.
Power save starts after 2 minutes.
Enable Advanced Settings

2 From the drop-down list, select **Windows Mobile Class**, **Windows Mobile Standard**, or **Windows Mobile Phone**.

3 Tap **ok** in the upper right corner to save your changes and close Power Profiler.

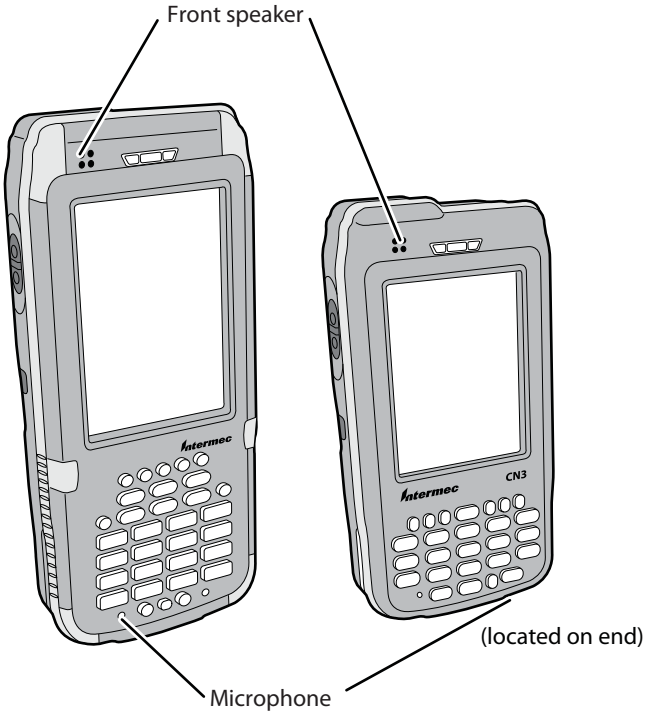
Power Profiler also provides advanced settings that allow you to fine-tune the power usage of the CN3. You can choose to have the Power button turn off the screen or turn off the device. You can also configure all of the settings in Power Profiler with Intermec Settings.

Understanding the Audio Features

There are several audio features available on the CN3. There are two speakers, a microphone, an external volume control, and multiple software tools for configuring the volume of sounds.

Using the CN3 as a Cell Phone

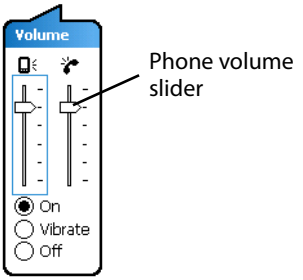
If your version of the CN3 has a phone, you can use the microphone and a front speaker for talking on the phone.



To adjust the volume of the front speaker

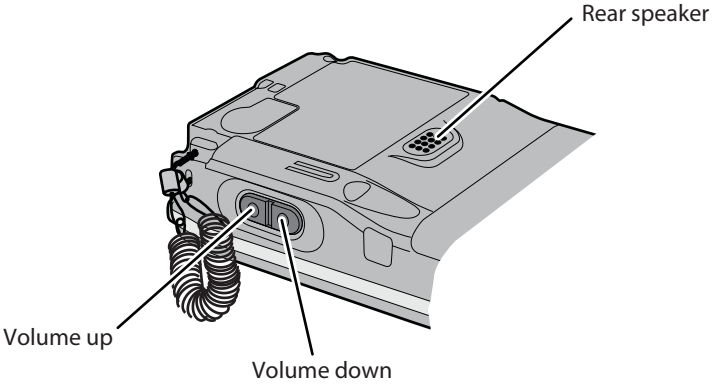
1. Tap the Volume ( ) icon at the top of the screen.
2. In the Volume adjust box, tap **On**.

3 Use your stylus to move the volume slider for the phone to the desired volume level.



Adjusting the Volume of the Rear Speaker

You can adjust the computer volume for your needs and your environment. The volume includes sounds you hear when you tap the screen or scan bar codes with a scanner. You can set the volume to off, very low, low, medium, high, and very high (default). Use the following table to understand the different ways to adjust the volume.



Location of the Rear Speaker and Volume Control

Changing the Volume of the Rear Speaker

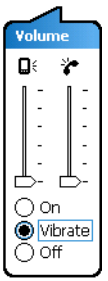
Way to Adjust Volume	Procedure
Tap the Volume ( ) icon in the navigation bar.	Use the stylus to move the volume slider up or down for the computer. You can also turn the volume on or off and choose to use Vibrate mode.
Use Intermec Settings.	From the **Start** menu, choose **Settings** > the **System** tab > **Intermec Settings**. Go to **Device Settings** > **Beeper** > **Volume**. Select the setting you prefer and save your changes before exiting. For help, see "Configuring the Computer With Intermec Settings" on page 48.
Press the side volume control.	Press the top of the side volume control to turn the volume up. Press the bottom of the side volume control to turn the volume down.

Note: For detailed information on the commands available in Intermec Settings, see the *Intermec Computer Command Reference Manual* (P/N 073529) available from the Intermec web site.

The CN3 has a built-in vibrate feature that enables you to receive scanner feedback despite the noise level. When enabled, the CN3 vibrates when the scanner performs a good read or when the phone receives a call.

To enable the vibrate feature

1. Tap the Volume ( ) icon at the top of the screen.
2. In the Volume adjust box, tap **Vibrate**.

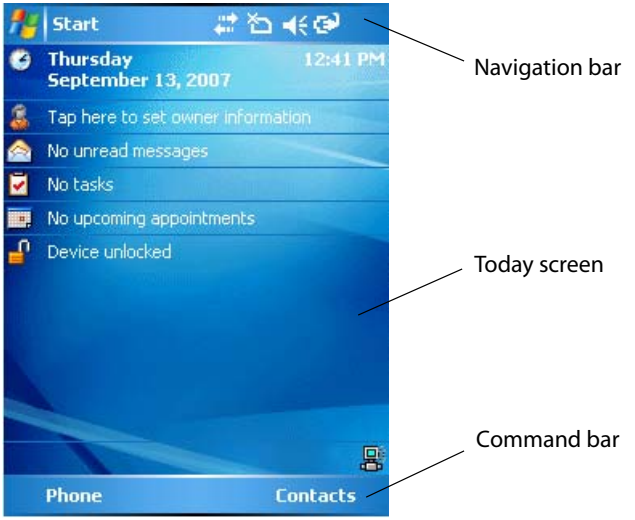


Note: The Volume icon in the Navigation bar changes to look like a vibrating CN3 ( ) when the computer is in Vibrate mode.

Using the Screen

The CN3 has a 3.5" diagonal, 240x320 pixel (QVGA) transflective TFT-LCD 64K color display.

- The Navigation bar displays the Start flag, the Connectivity icon, the Volume icon, and the time and next appointment.
- The Today screen displays shortcuts to some of the applications installed on the CN3 and important information for the day.
- The Command bar displays the onscreen keyboard icon, Windows Mobile 5.0 links, and icons to any applications that are running, but are hidden from view.



The Windows Mobile Today Screen

Using the Stylus

Your computer has a stylus for selecting items and entering information on the touch screen.

Functions You Can Perform With the Stylus

Action	Description
Tap	Touch the screen once with the stylus to select options, open or close applications, or launch menus from the Command bar.
Drag	Hold the stylus on the screen and drag across the screen to select text and images.
Tap and hold	Tap and hold the stylus on an item to see a menu of actions available for that item. On the pop-up menu that appears, tap the action you want to perform.

Understanding the Screen Icons

Use the screen icons on the Navigation bar and the Command bar to see the battery status, network connections, and so on. Some standard Microsoft icons are included in this table.

Computer Screen Icons

Icon	Description
	The battery is full.
	The battery is low. You need to replace or charge the battery very soon.
	The battery is charging.
	The volume is turned off. To turn the volume back on, tap this icon and choose your setting.
	The computer is connected to the network.
	The computer is not connected to the network.
	The 802.11b/g radio is connected to the wireless network.
	The computer is connected through the USB port to your desktop PC.
	The iConnect application icon. Tap it to set up Ethernet or Wireless settings.

Aligning the Touch Screen

If the touch screen does not respond when you tap it with the stylus, you may need to calibrate the screen.

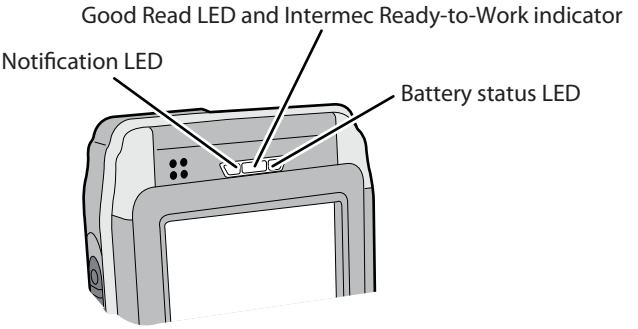
To calibrate the touch screen

1. Tap **Start** > **Settings** > the **Systems** tab > **Screen**.
2. Tap **Align Screen** and follow the instructions to align the screen.
3. Click **ok**.

If the touch screen is so out of alignment that you cannot open the Start menu, you may need to perform a clean boot. After the computer clean boots, it prompts you to align the screen. For more information about performing a clean boot, see "Clean Booting the Computer" on page 125.

Understanding the Status LEDs

The status LEDs above the display show the following information:



For more information on the Battery Status LED, see "Understanding the Battery Status LED" on page 8.

Understanding the LEDs

LED	Color	Description
Notification	Orange	The CN3 is notifying you of a pending alarm or message.
Good Read	Green	The CN3 has successfully decoded a bar code.

Understanding the LEDs (continued)

LED	Color	Description
Ready-to-Work indicator	Blue	The CN3 is suspending or resuming with the display turned off.
	Blinking blue	You have successfully loaded and activated TE 2000. The TE 2000 application is loaded, but is inactive.
	Off	The TE 2000 application is missing or disabled.

Note: The blue light may stay on for up to 30 seconds, but will usually turn off after less than 10 seconds. During this time, do not toggle the CN3 on or off and do not remove the battery, or you may corrupt the CN3.

The Read-to-Work indicator (blue light) is for the SmartSystems Foundation application that is part of a wireless network using all Intermec devices. For more information, see **"Remotely Configuring the Computer Using SmartSystems Foundation" on page 49** or contact your Intermec representative. Selected application software programs may also use the blue light, either steady or flashing, for other purposes.

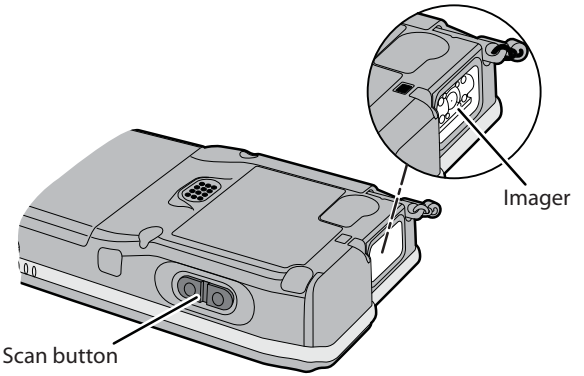
Scanning Bar Codes

Use the area imager to scan and enter bar code data. If your CN3 has an area imager, you cannot have the color camera option too. The CN3 supports reading 1D and 2D images, composite and postal codes. These bar code symbologies are enabled by default on the CN3: Code 39, Code 128, UPC-A, UPC-E, EAN-8, EAN-13, and DataMatrix.

If you are using bar code labels that are encoded in a different symbology, you need to enable the symbology on the computer. Use Intermec Settings to enable and disable symbologies. For help, see **"Configuring the Computer With Intermec Settings" on page 48**.

Scanning with the Area Imager

The CN3 has an area imager that can scan 1D and 2D bar code symbologies, composite, and postal codes. It also supports omni-directional (360°) scanning where you can position the CN3 in any orientation to scan a bar code label. Using the 2D imager is like taking a picture with a digital camera.



Locating the Imager and the Scan Button

To use the area imager

1. Press the power button to turn on the CN3, point the scanner window a few inches from the bar code label, and hold steady.
2. Press the **Scan** button and center the red aiming beam over the bar code label. The aiming beam is smaller when the imager is closer to the bar code and larger when it is further away.

When a bar code label is successfully read, a high beep is emitted and the Good Read LED lights briefly. Release the **Scan** button.

Improving the Performance of the Area Imager

If you experience problems scanning a bar code with the 2D imager, try following some of these tips to improve the performance of your imager.

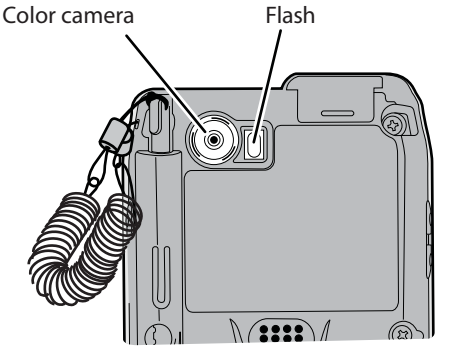
- Keep your hand as steady as possible while scanning a label.
- Position the imager as close to the bar code as possible while still being able to capture the entire bar code.
- Enable only the bar codes that you need to use every day.

- Choose a Predefined mode in Intermec Settings:
  - **a** Tap **Start** > **Settings** > the **System** tab > **Intermec Settings**.
  - **b** Tap **Data Collection** > **Internal Scanner** > **Imager Settings** > **Predefined Modes** and then select one of these options:

Predefined Mode	Select if You Are Scanning:
1D	Only 1D labels.
1D and 2D Standard	All types of bar code labels.
1D and 2D Bright Environment	In high ambient light, such as outdoors in the sunshine.
1D and 2D Reflective Surface	Glossy labels.
Custom	In conditions that require customized settings. For more information about these settings, commands, and parameters, see the *Intermec Computer Command Reference Manual* available from the Intermec web site at **www.intermec.com**.

Using the Color Camera

The color camera with flash is an optional feature that is factory-installed into the upper back of the CN3, as shown in the following illustration.



Color Camera and Flash

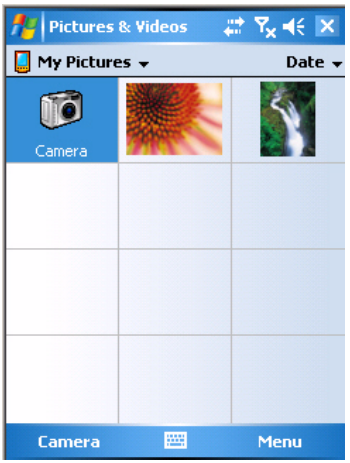
If you have the color camera option, you cannot have the area imager option because they occupy the same space. You can take photos in either high-resolution or compressed format, with resolutions up to 1200 x 1024 pixels. When you take a picture, the images are saved as .jpg files and stored in the /My Documents/My pictures folder.

You can use the Pictures & Videos application on the CN3 to take, view, and edit pictures or record and launch video clips stored on the CN3 or a storage card. You can also send pictures and video clips to others or save an image as the background on the Today screen.

After the color camera is enabled, you can configure camera options by going to **Menu** > **Options**. While you are in the Pictures & Videos application, you can select **Start** > **Help** for complete information on using the camera.

To take a picture with the camera

1. Tap **Start** > **Programs** > **Pictures & Videos**.
2. Tap the **Camera** option in the grid or tap **Camera** in the taskbar.



3. Using the screen display as a viewfinder, move the camera until you have the image you want to capture.
4. Press **Enter** or tap the screen to save the image. If you select to save your pictures to main memory, they are saved to permanent storage on the CN3.

To save picture files

1. Tap the **Camera** tab.
2. Select where you want to save files to, type a filename prefix, and select a compression level.
3. Tap **ok**.

Using the Storage Card

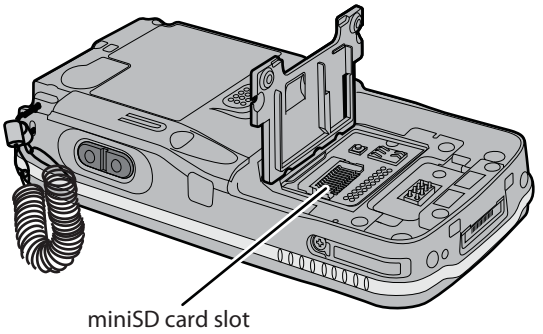
The CN3 uses a miniSD card to increase file storage and install software. The miniSD card slot is located under a door that is beneath the battery pack. Remove the two screws holding the door to reach the miniSD card.

You can corrupt your miniSD card if you do not follow these installation and removal procedures exactly. Before installing a miniSD card, inspect the gasket on the door for any damage or wear, and contact your Intermec representative if you find any damage or wear.

Note: The CN3 will reset if you open the miniSD/SIM door. The screws to this door must be in place and torqued to 1.0 in-lbs (0.11 Nm) to ensure normal operation.

To insert the miniSD card

1. Press the **Power** button to suspend the CN3, and then remove the battery pack from the back of the CN3.
2. Remove the two screws on the miniSD/SIM card slot door.
3. Gently lift the door to the card slot, then with the metal contacts facing down, insert the storage card into the miniSD card slot.



4 Close the miniSD/SIM card slot door and insert the two screws.

Caution

Do not over-torque the two screws that secure the card slot door. You can damage the door.

5 Replace the battery pack and then press the **Power** button.

Once the door to the miniSD is opened and closed (for changing, installing, or removing the SIM or miniSD card), the CN3 performs a cold boot.

Setting Up GPS on Your CN3

If your CN3 comes equipped with an integrated Global Positioning System (GPS) receiver, it can deliver standards-based National Marine Electronics Association (NMEA) data strings to GPS applications. However, Intermec recommends that you use the GPS Intermediate Driver (GPSID) instead of directly accessing the GPS hardware. The GPSID is a Microsoft software component that interacts between applications and the GPS hardware.

Using the GPSID allows Intermec support for Extended Ephemeris, which enhances GPS performance by:

- reducing the amount of time it takes your GPS receiver to acquire a fix.
- eliminating the need to obtain precise satellite data information from the GPS satellites.

And, as a Microsoft software component, the GPSID also provides these benefits:

- Allows multiple applications to simultaneously access the GPS data stream.
- Provides access to GPS data without requiring applications to recognize and parse NMEA syntax.

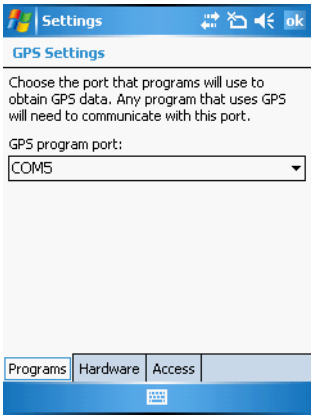
Using the GPSID Installed on the CN3

To use the GPSID installed on your CN3, you need to configure the GPSID settings.

To configure your GPSID settings

1 Tap **Start** > **Settings** > the **System** tab.

2 Tap **GPS**. The GPS Settings screen appears.

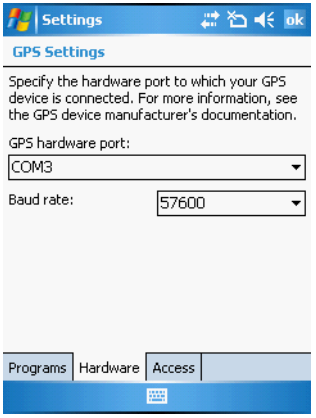


3 On the **Programs** tab, select the COM port that you want your programs to use to get GPS data from your CN3.

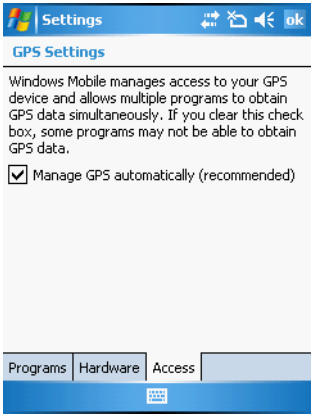
Note: COM1 and COM3 are reserved.

4 Tap the **Hardware** tab, and select these settings.

GPS hardware port:	COM3
Baud rate:	57600



5 Tap the **Access** tab and select the **Manage GPS automatically** check box.


Settings
ok
GPS Settings
Windows Mobile manages access to your GPS device and allows multiple programs to obtain GPS data simultaneously. If you clear this check box, some programs may not be able to obtain GPS data.
Manage GPS automatically (recommended)
Programs
Hardware
Access

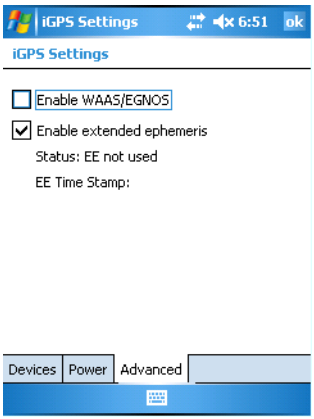
6 Tap **ok**.

To enable extended ephemeris

1 Tap **Start** > **Settings** > the **System** tab.

2 Tap **iGPS settings**. The iGPS Settings screen appears.

3 Tap the **Advanced** tab.



4 Select the **Enable extended ephemeris** check box.

5 Tap **ok**.

Learning About Additional GPS Options for the CN3

Intermec provides enhanced feature support for the Extended Ephemeris data capability. For the latest Extended Ephemeris data files and other CN3 downloads, visit the CN3 downloads page on the Intermec web site at **www.intermec.com**. For more information about programming for Extended Ephemeris GPS, visit the Intermec Developer Library at **www.intermec.com/idl**.

2 Windows Mobile

This chapter introduces Microsoft Windows Mobile 5.0 for Pocket PC. In this chapter you will find these sections:

- Understanding Windows Mobile 5.0
- Finding Information on Windows Mobile
- Learning the Basic Skills
- Using Microsoft ActiveSync
- Using Internet Explorer Mobile

Understanding Windows Mobile 5.0

This chapter introduces Microsoft Windows Mobile 5.0. While using the CN3, keep these key points in mind:

- Tap **Start** on the navigation bar, located at the top of the screen, to quickly move to programs, files, and settings. Use the command bar at the bottom of the screen to perform tasks in programs. The command bar includes menus, icons, and the onscreen keyboard.
- Tap and hold an item to see a pop-up menu containing a list of actions you can perform. Pop-up menus give you quick and easy access to the most common actions.
- Tap **Start** > **Help**, and then select a topic on your computer to find additional information on Windows Mobile components.

Microsoft Windows Mobile 5.0 contains these standard Office Mobile programs:

- Word Mobile
- Excel Mobile
- PowerPoint Mobile

Finding Information in Windows Mobile

This section describes how to find Windows Mobile information on your computer.

Finding Information in Windows Mobile

For Information On:	See This Source:
Programs on the CN3.	This chapter and the computer help. To view help, tap **Start** > **Help**, and then select a topic.
Additional programs that can be installed on the CN3.	The *Windows Mobile Companion CD*.
Connecting to and synchronizing with a desktop.	ActiveSync help on your desktop. To view help, click **Help** > **Microsoft ActiveSync Help**.
Last-minute updates and detailed technical information.	The Read Me files, located in the Microsoft ActiveSync folder on the desktop and on the *Windows Mobile Companion CD*.
Up-to-date information on Windows Mobile.	**www.microsoft.com/windowsmobile/resources/communities/default.mspx**

Use these URLs for additional information about Microsoft Windows Mobile (Pocket PC):

- **msdn2.microsoft.com/en-us/support/default.aspx**
- **support.microsoft.com/**
- **http://msdn.microsoft.com/newsgroups/**

And, most importantly, the Intermec front-line support personnel can help assist you work with many of the Windows Mobile and technologies that you find on the CN3. See "Global Services and Support" on page ix for more information.

Learning the Basic Skills

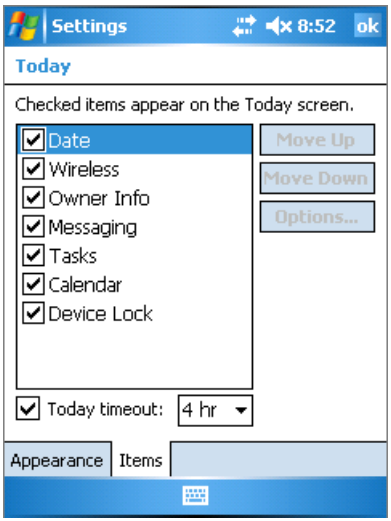
Learning to use your CN3 is easy. This section describes the basic concepts of using and customizing your CN3.

Today Screen

When you turn on your CN3 for the first time each day (or after four hours of inactivity), you see the **Today** screen. You can also display it by tapping **Start** > **Today**. On the Today screen, you can see important information for the day.

To customize what displays on the Today screen

- Tap **Start** > **Settings** > the **Personal** tab > **Today** > the **Items** tab.



Status icons display information such as when the computer is connected to the network or to the Internet. You can tap an icon to open the associated setting or program.

Accessing Programs

You can switch from one program to another by selecting it from the **Start** menu. You can customize which programs you see on this menu. For information, see "Adjusting Settings" on page 41.

To access programs

- Tap **Start** > **Programs**, and then tap the program name.

The following list contains some of the programs on your computer. Look on the *Windows Mobile Companion CD* for additional programs that you can install onto your computer.

- ActiveSync
- Excel Mobile
- PowerPoint Mobile
- Word Mobile

Navigation Bar and Command Bar

The navigation bar is located at the top of the screen. It displays the active program and current time, and it allows you to switch between programs and close screens.

Windows Mobile Navigation Bar

The command bar is located at the bottom of the screen. Use the command bar to perform tasks in programs. The command bar includes menu names, functions, and the Input Panel icon when needed.

Windows Mobile Command Bar

Using Pop-Up Menus

Use pop-up menus to quickly perform an action on an item. For example, you can use a pop-up menu to delete or make a copy of an item. To access a pop-up menu, tap and hold the item on which you want to perform the action. When the menu appears, tap the action you want to perform, or tap anywhere outside the menu to close the menu without performing the action.

Entering Information

You can enter information on your computer in several ways depending on the program you are using.

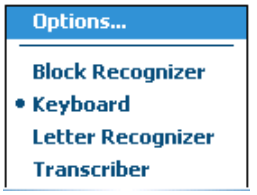
Understanding the Ways to Enter Information

Enter Information By:	Do This:
Synchronizing	Use Microsoft ActiveSync to synchronize or copy information between your desktop PC and the computer. For more information on ActiveSync, see Microsoft ActiveSync Help on your desktop PC.
Typing	Use Microsoft ActiveSync to synchronize or copy information between your desktop PC and the computer. For more information on ActiveSync, see Microsoft ActiveSync Help on your desktop PC
Writing	Use the stylus to write directly on the screen.
Drawing	Use the stylus to draw directly on the screen.
Recording	Create a stand-alone recording or embed a recording into a document or note.

Use the input panel to enter information in any program on your computer. You can either type using the onscreen keyboard or write using Block Recognizer, Letter Recognizer, or Transcriber. In any case, the characters appear as typed text on the screen.

To show or hide the input panel

1. Tap the Input Panel icon ( ).
2. Tap the arrow next to the Input Panel icon to see your choices.



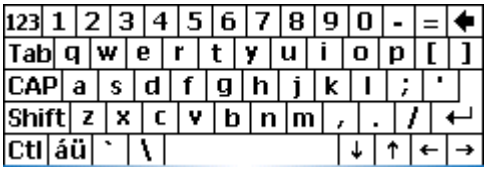
When you use the input panel, your computer anticipates the word you are typing or writing and displays it above the input panel. When you tap the displayed word, it is inserted into your text at the insertion point. The more you use the computer, the more it learns to anticipate what you are going to do.

To change word suggestion options, such as the number of words suggested at one time, tap **Start** > **Settings** > the **Personal** tab > **Input** > the **Word Completion** tab.

Typing With the Onscreen Keyboard

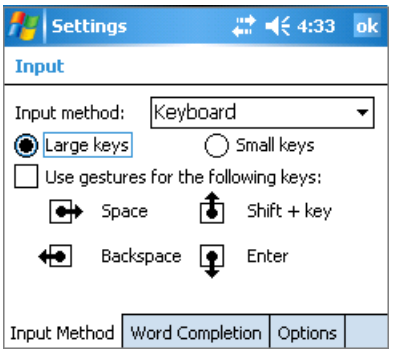
Tap the input panel arrow, and then tap **Keyboard**. On the soft keyboard that displays, tap the keys with your stylus.

- To type lowercase letters, tap the keys with the stylus.
- To type a single uppercase letter or symbol, tap the **Shift** key. To tap multiple uppercase letter or symbols, tap the **CAP** key.



To use larger keys

1. Tap the input panel arrow and then tap **Options**.
2. On the **Input Method** tab, select **Large keys**.



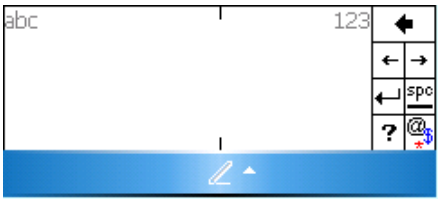
Using Block Recognizer

Character recognition software gives you a fast and easy method for entering information in any program on the computer. Letters, numbers, and punctuation you write are translated into typed text.

To use Block Recognizer

1. Tap the input panel arrow and then tap **Block Recognizer**.
2. Write a letter in the box. In converts to typed text that appears on the screen.

For specific instructions on using Block Recognizer, tap the question mark next to the writing area.



Using Transcriber

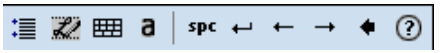
With Transcriber, you can write anywhere on the screen using the stylus just as you would on paper. Unlike Letter Recognizer and Clock Recognizer, you can write an entire sentence of information.

To use Transcriber

1. Tap the input panel arrow and then tap **Transcriber**.
2. Tap **ok**.

3 Write anywhere on the screen. Pause and let Transcriber change the written characters into typed characters.

For help using Transcriber, tap the question mark in the lower right-hand corner of the screen.



Selecting Typed Text

If you want to edit or format typed text, you must select it first.

To select typed text

1 Drag the stylus across the text you want to select.

2 Double-tap text or drag the stylus across text you want to select.

3 Do one of the following:

   a Tap and hold the stylus on the text to bring up the pop-up menu and select a command.

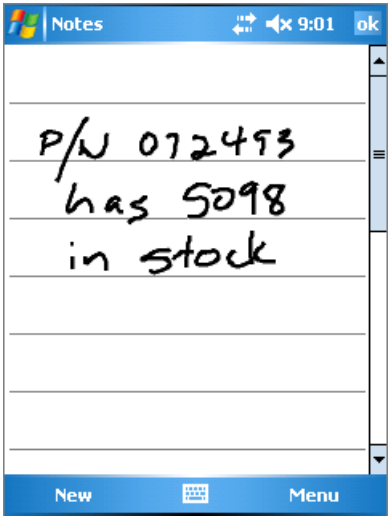
   b Select a command by tapping Menu from the command bar.

Writing on the Screen

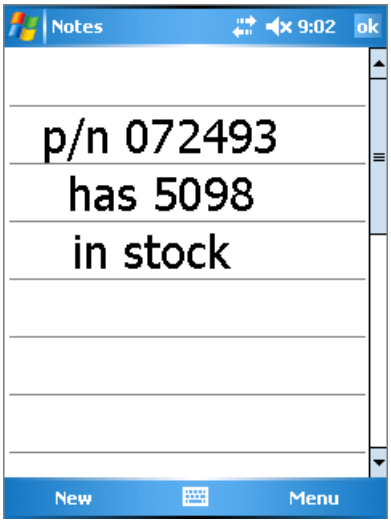
In any program that accepts writing, such as the Notes program, you can use your stylus to write directly on the screen. Write the way you do on paper. You can edit and format what you have written and convert the information to text in the future.

To convert the writing to text

1 Write your information on the screen with the stylus.



2 Tap **Menu** > **Tools** > **Recognize**. Your writing is converted to text.



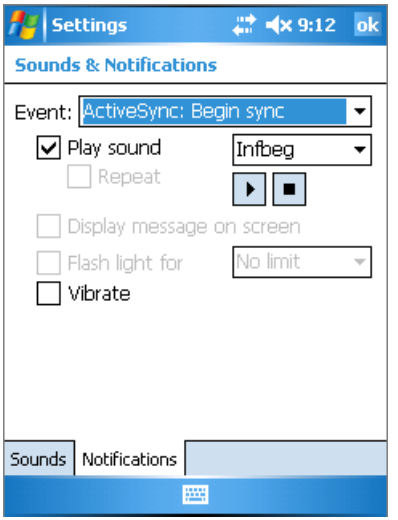
Notifications

When you have an appointment or a task to do, your computer can notify you in a variety of ways. For example, if you have set up an appointment in Calendar, you can be notified in any of the following ways:

- A message box appears on the screen.
- A sound, which you can specify, plays.
- A light flashes on your computer.
- The computer vibrates.

To choose how you are notified

1 Tap **Start** > **Settings** > **Sounds & Notifications** > the **Notifications** tab.



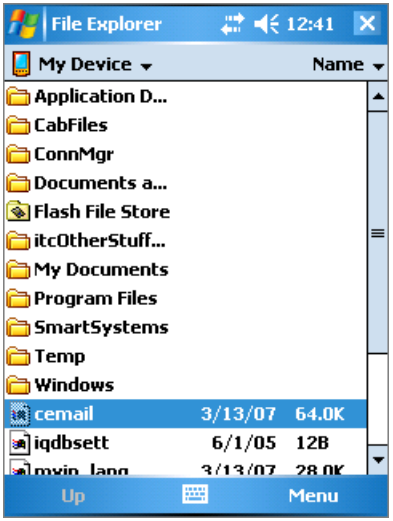
2 Choose your settings and then click **ok**.

Finding and Organizing Information

You can use File Explorer to find files on your computer and organize these files into folders.

To open File Explorer

- Tap **Start** > **Programs** > **File Explorer**.



Once you open File Explorer, it becomes available from **Start** menu.

Customizing the Computer

You can customize your computer by adjusting settings and by adding or removing programs.

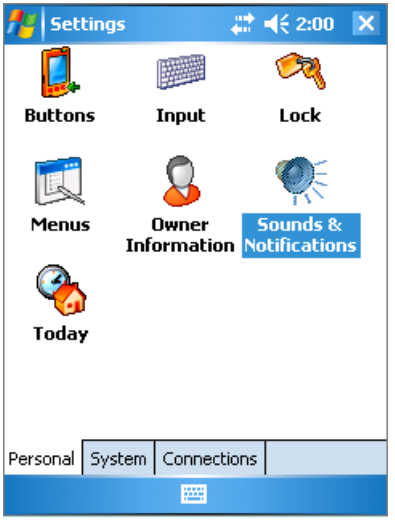
Adjusting Settings

You can adjust the computer settings to suit the way you work.

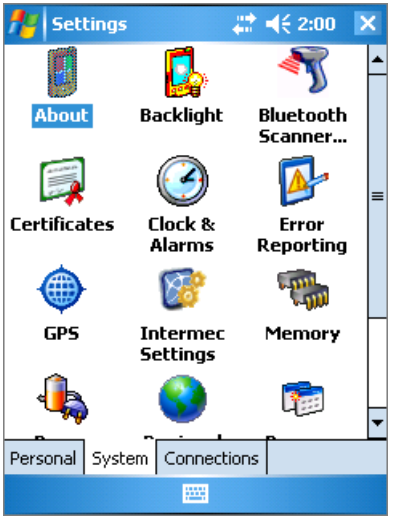
To view the Settings options

- Tap **Start** > **Settings** > either the **Personal** tab or the **System** tab.

You might want to adjust settings on the following screens.



Personal Tab



System Tab

Adjustable Settings on the Computer

Setting	Why Adjust It?
Menus	To customize what appears on the Start menu.
Owner Information	To enter your contact information.

Adjustable Settings on the Computer (continued)

Setting	Why Adjust It?
Lock	To limit access to the computer.
Today	To customize the look and information that displays on the Today screen.
Clock & Alarms	To change the time or to set alarms.
Power	To maximize battery life. You can view the status of the backup battery and determine the length of time it takes for the computer to turn off if not used.

Adding or Removing Programs

Programs added to your computer at the factory are stored in ROM (Read Only Memory). You cannot remove this software, and you cannot accidentally lose ROM contents. Applications added to your computer go into the Object Store, which is located in Flash ROM. See **"Installing Applications on the Computer" on page 104** for more information about the Object Store.

You can install any program created for the CN3 mobile computer, as long as there is enough memory. A popular place to find software for your computer is on the Windows Mobile Web site (**www.microsoft.com/windowsmobile/resources/communities/default.mspx**).

Using Microsoft ActiveSync

Use Microsoft ActiveSync to synchronize the information on your desktop with the information on the computer. Synchronization compares the data on the computer with your desktop PC and updates both computers with the most recent information.

Note: By default, ActiveSync does not automatically synchronize all types of information. Use ActiveSync options to turn synchronization on or off for specific information types.

You can also perform these functions with ActiveSync:

- Copy files between the computer and the desktop.

- Back up and restore the computer data.
- Control when synchronization occurs by selecting a synchronization mode.
- Select which information types are synchronized and control how much data is synchronized.

To use ActiveSync

1. Insert the computer into communications dock attached to your PC with a USB cable.
2. Install ActiveSync on your desktop. ActiveSync is available from the Windows Mobile Companion CD or from the Microsoft web site. ActiveSync is already installed on the computer.

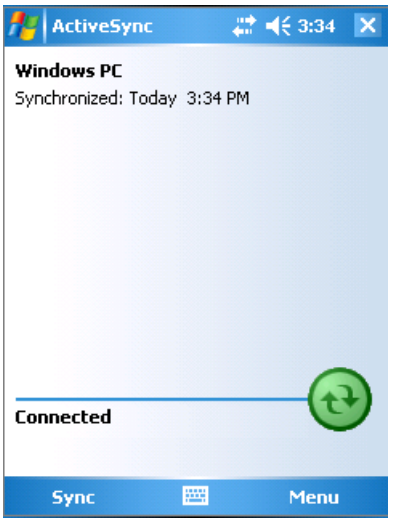
   After installation, ActiveSync automatically launches the ActiveSync Setup Wizard.
3. Follow the screens of the ActiveSync Setup Wizard to complete the synchronization process. The wizard helps you connect to the computer, set up a partnership for synchronization, and customizes synchronization settings.

   The synchronization process automatically begins when you finish the wizard.
4. Disconnect the computer from your desktop and go to work.

Once you have set up ActiveSync and completed the first synchronization process, you can initiate synchronization from your computer.

To open ActiveSync on your computer

- Tap **Start** > **Programs** > **ActiveSync**. ActiveSync opens and shows you the synchronization status.



For more information about ActiveSync on your computer, open ActiveSync and tap **Start** > **Help**.

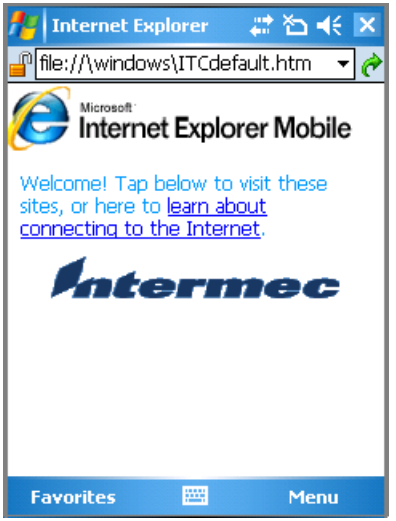
Using Internet Explorer Mobile

You can use Internet Explorer Mobile to run web-based applications, and view pages downloaded to the computer. You can also connect to the Internet through an ISP or a network connection and browse the Web.

You can make connections using a modem, a wireless network, or an Ethernet connection. You can use a modem connection to set up connections with an external modem.

To use Internet Explorer

1. Set up a connection to your ISP or corporate network by going to **Start** > **Settings** > the **Connections** tab > **Connections**. Use the Connections Help to understand the process you need to go through to set up a connection.
2. Tap **Start** > **Internet Explorer**. The default page that appears when you open Internet Explorer contains links to Intermec-specific information and to the Windows Mobile web site.



Default Internet Explorer Web Page

3 Configuring the Computer

Use this chapter to understand how to configure the CN3 to communicate in your network. In this chapter, you will find these sections:

- Configuring the Computer Operating Parameters
- Configuring Personal Area Networks
- Configuring Local Area Networks
- Configuring the Phone
- Connecting to an ISP
- Connecting to a Private Network With a RAS Account
- Connecting to a Private Network With a VPN Server
- Configuring Security

Configuring the Computer Parameters

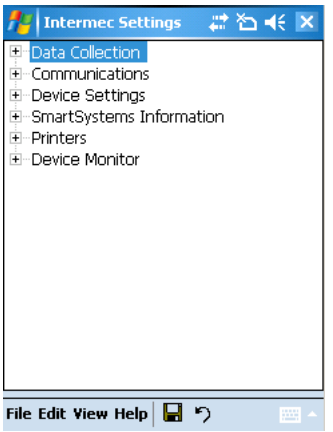
You can configure many parameters on the computer, such as the bar code symbologies it decodes or the network settings. These characteristics are controlled by configuration parameters. The values you set for these configuration parameters determine how the computer operates.

Configuring the Computer With Intermec Settings

Use Intermec Settings to configure the computer and view system information. You can access Intermec Settings while running any application.

To open Intermec Settings

- Tap **Start** > **Settings** > the **System** tab > **Intermec Settings**.



For detailed information on most of the commands available in Intermec Settings, see the *Intermec Computer Command Reference Manual* (P/N 073529) on the Intermec web site.

Navigating in Intermec Settings

To Do This Function	Do This
Select a command.	Tap the command or press ▲ or ▼.
Expand a command.	Tap the command or press ► or ◄.
Select text in a text box.	Tap in the text box and drag the stylus over the text.
Save your settings.	Tap **File** > **Save Settings** or tap 💾.

Remotely Configuring the Computer Using SmartSystems Foundation

SmartSystems™ Foundation lets you manage all of your SmartSystems-enabled devices at the same time from a central server. The mobile computer ships with the SmartSystems client, which means it is SmartSystems enabled. The SmartSystems server has a console that displays all of the computers in your network. In the console, you can right-click a computer and a menu appears. To configure the computer, choose Intermec Settings from the menu.

SmartSystems Foundation is available from the Intermec web site. To download SmartSystems Foundation, go to **www.intermec.com/SmartSystems**. For information on how to use the SmartSystems server, see the online help.

Synchronizing the Computer System Time with a Time Server

It is important that the time on all of your computers be synchronized with a network time server to ensure real-time communications and updates. Network time servers acquire Coordinated Universal Time (UTC) from an outside source such as the U.S. Naval Observatory (USNO). The CN3 uses Simple Network Time Protocol (SNTP) to synchronize with a network time server.

The default reference time server is the USNO (**tock.usno.navy.mil**). To synchronize the time on your computer with this time server, you must have a valid connection to the Internet. You can also synchronize the computer system time with a corporate network server within your firewall that is SNTP-capable. To use an internal corporate network server, you need to set the command name in the registry.

Configuring Personal Area Networks

Bluetooth™ is a technology standard that uses short-range radio links, intended to replace cables connecting portable and fixed electronic devices. The key features of Bluetooth are robustness, low complexity, low power, and low cost. The technology offers wireless access to LANs, the mobile phone network, and mobile computers.

You can also print wirelessly by using Microsoft APIs, including Bluetooth extensions for Winsock and Bluetooth virtual COM ports. Information about other Bluetooth software is in the Bluetooth Resource Kit and the Bluetooth Resource Kit User's Guide which is part of the Intermec Developer Library (IDL). The IDL is available as a download from the Intermec web site at **www.intermec.com/idl**.

You can send and receive information to a Bluetooth device wirelessly using the Bluetooth radio in the computer. The communication range of the Bluetooth connection depends on the capabilities of the remote device, environmental conditions, and obstructions.

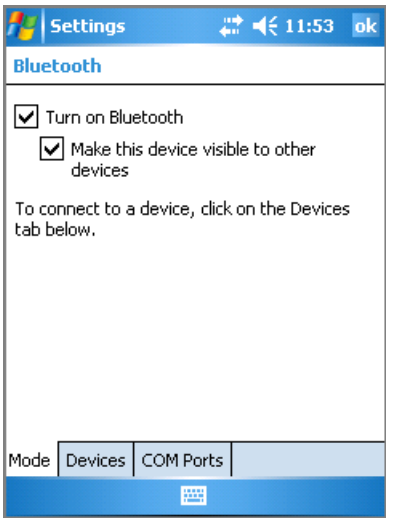
You can use the Bluetooth radio to perform these wireless activities:

- Print to a Bluetooth printer
- Connect to a Bluetooth scanner
- Connect to a Bluetooth Audio Device

The Bluetooth radio is disabled by default. You must turn on the Bluetooth radio before you can discover and connect to other remote devices.

To turn the Bluetooth radio on

1. Tap **Start** > **Settings** > the **Connections** tab > **Bluetooth**.
2. Tap **Turn on Bluetooth**.
3. (Optional) Tap **Make this device visible to other devices** if you want your computer to be discoverable by other Bluetooth devices.



4 Click **ok**.

Once Bluetooth is enabled, it stays enabled through a warm or cold boot and maintains virtual COM ports (such as printing) registration. However, you must reactivate connections because they are not done automatically.

You can also use Intermec Settings to turn on the radio and enable Bluetooth settings. Use this table to understand the settings you see in the Bluetooth menu in Intermec Settings.

Bluetooth Settings

Setting	Description
Power	Set and view whether the Bluetooth radio is on or off.
Discoverable	Allows other Bluetooth devices to be able to discover the computer during a device discovery.
Connectable	Allows other Bluetooth devices to connect to your computer.
Class of Device	Determines how the device appears to other devices during discovery.
IBT	Displays the Intermec Bluetooth Library version.
Radio	Displays the Bluetooth Radio Hardware version.
Device Address	Displays the Bluetooth address of your computer.

Configuring the Computer to Communicate With a Wireless Scanner

This section explains how to configure the computer to communicate with Bluetooth wireless scanners. The computer ships with a Bluetooth association label attached to the left side. Scan the association label to quickly connect the computer to the Bluetooth wireless scanner, such as the SF51 or SR61.

Note: If for some reason the Bluetooth association label does not work, you can follow the procedure for configuring the computer from Intermec Settings at the end of this section.

To configure Bluetooth communications on the computer

1. Select **Start** > **Settings** > the **System** tab > **Intermec Settings**.
2. Select **Communications** > **Bluetooth**.
3. If you want to allow incoming connections from wireless scanners, you must enable these two parameters:
   - Discoverable
   - Connectable

   Note: If you do not want to allow incoming connections, make sure both parameters are disabled.
4. Save your changes and exit Intermec Settings.

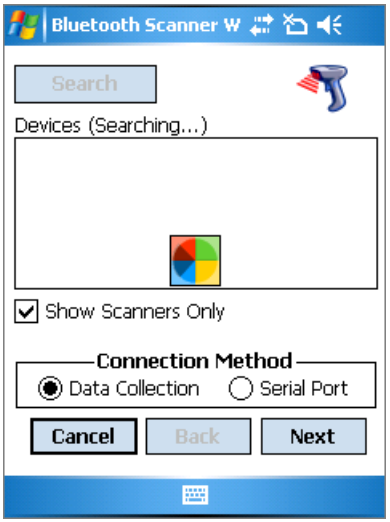
To connect to the wireless scanner using the association label

1. Using your wireless scanner, scan the Bluetooth association label on the side of the CN3.
2. The CN3 prompts you to enter the passcode for your scanner. The default passcode for Intermec Bluetooth scanners is 0000.
3. Tap **Finish**.

To connect to the wireless scanner using Bluetooth Scanner Wizard

1. Select **Start** > **Settings** > the **System** tab > **Bluetooth Scanner Wizard**.
2. Tap **Add Device**. The wizard advances to the next screen.

3 Select how you would like to set your scanner (the default is Search) and then click **Next**. The computer starts discovering scanners.



4 Select the scanner you want to connect to from the Devices list and then tap **Next**.

5 When prompted to add the scanner to your device list, tap **Yes**.

6 In the Passcode text box, enter the passcode for your scanner. The default passcode for Intermec Bluetooth scanners is `0000`.

7 Tap **Next**. The computer connects to the scanner and displays the remote device information.

8 Tap **Finish**.

9 Refresh Intermec Settings to see the Bluetooth scanner under Data Collection. You can now view and modify any symbology settings.

To remove a wireless scanner from the computer

1 Select **Start** > **Settings** > the **System** tab > **Bluetooth Scanner Wizard**.

2 Tap **Remove Device**.

3 Select the Bluetooth scanner from the DCE Device(s) list that you want to disconnect and then tap **Disconnect**.

The scanner you wanted to remove no longer appears in the list.

4 Tap **Finish**.

Configuring Bluetooth Communications for Wireless Printing

This section explains how to configure the computer for Bluetooth wireless printing. You need to:

- make sure Bluetooth power is on. For help, see the procedure in "Configuring Personal Area Networks" on page 49.
- create an application that lets you print. For help, see the next section.
- select the current wireless printer on the computer. For help, see "Selecting the Current Wireless Printer on the Computer" on page 55.

Creating an Application That Lets You Print Wirelessly

The computer does not ship with an application that lets you print wirelessly. You must create an application that opens the wireless printing COM port on the computer. For help, see the Bluetooth Resource Kit.

The Wireless Printing application is available from **Start** > **Settings** > the **System** tab. The application separates the task of wireless printing setup from other Bluetooth management tasks.

The Wireless Printing application uses the concept of a "current wireless printer." The computer connects to the current wireless printer when your application opens the wireless printing COM port on your computer. If there is no current wireless printer selected on your computer, there is no wireless printing COM port registered on your computer. You must select a current wireless printer as described in the next section.

The Wireless Printing application performs these tasks on the computer:

- Helps you select the current wireless printer
- Stores the current wireless printer in the registry
- Registers/deregisters the wireless printing COM port

- Stores the wireless printing COM port in the registry as the WPort

Specifically, the current wireless printer is registered and deregistered on Bluetooth stack load/unload. If you select a different current wireless printer, the existing wireless printing COM port is deregistered and the new one is registered instead. The Wireless Printing application uses the Bluetooth COM Port Control to handle COM port registration/deregistration.

Selecting the Current Wireless Printer on the Computer

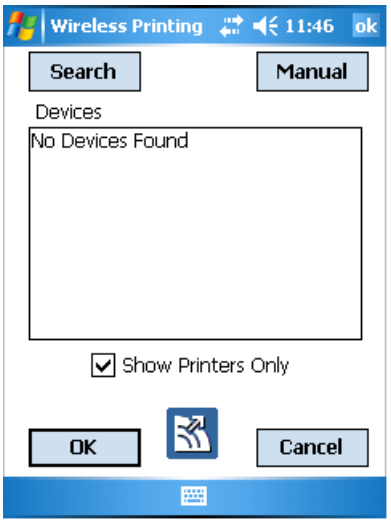
By default, there is no current wireless printer selected on the computer.

There are three ways to select the current wireless printer:

- Discovering the printer using Bluetooth device discovery
- Manually entering the printer's Bluetooth device address
- Choosing the printer from a list of previously discovered printers

To discover the printer with Bluetooth device discovery

1 Select **Start** > **Settings** > the **Systems** tab > **Wireless Printing**. The Wireless Printing wizard appears.



2 Tap **Search** to initiate printer discovery. All Bluetooth printers discovered within range appear in the devices list.

3 Select the printer you want to connect to and then tap **OK**.

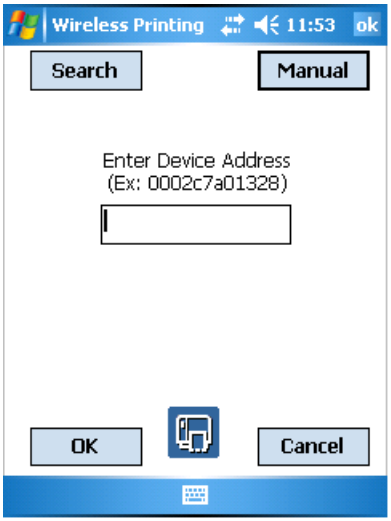
4 If your preferred printer does not appear, make sure the printer is turned on and discovery is enabled, and then repeat Steps 1 through 3.

5 Tap **Print Test Page**. The printer prints out the test page.

To manually enter the device address of the printer

1 Select **Start** > **Settings** > the **Systems** tab > **Wireless Printing**. The Wireless Printing wizard appears.

2 Tap **Manual**. The wizard advances to the next screen where you enter the device address.



3 Type the address of the printer in the Enter Device Address text box and then tap **OK**. The keyword -unknown- appears in the Device Name field in the Current Wireless Printer box. The name of the printer is not sent to the computer when you manually enter the printer address.

4 Tap **Print Test Page**. The printer prints out the test page.

To choose the printer from a list of previously discovered printers

1 Make sure you have already performed a Bluetooth device discovery.

2. Select **Start** > **Settings** > the **Systems** tab > **Wireless Printing**. The Wireless Printing wizard appears.
3. Tap **Set Different Printer**. The Devices list appears with the list of previously discovered printers.
4. Select the printer you want and tap **OK**.
5. Tap **Print Test Page**. The printer prints out the test page.

Connecting to a Bluetooth Audio Device

Use the Bluetooth Audio applet to discover, activate, and connect to Bluetooth audio devices such as a Bluetooth headset. You can control the audio volume and the amplification for the microphone for the connected Bluetooth audio device (if the connected device has these capabilities).

To connect to a Bluetooth headset

1. Select **Start** > **Settings** > **Control Panel** > **Bluetooth Audio**.
2. Tap **Search for Devices**. The CN3 searches for audio devices.
3. When searching for a device, select **Yes** when you are prompted to add a device to your list.
4. Enter the passcode provided by your Bluetooth audio device and then tap **Next**.

   The passcode is provided by the manufacturer of your Bluetooth audio device. You can usually find your passcode in the user's manual that comes with your audio device.
5. Select the services tied to the Bluetooth audio device you are connecting to and then tap **Finish**.

Once the pairing is successfully completed, the Bluetooth audio device appears in the list of devices that are found. To open a pop-up menu for setting the device as the default, making a connection, refreshing the connection, or deleting a device from the list, double-tap a device in the list.

You can only select one Bluetooth audio device as the default device. You must set a device to default before you can connect to that device.

Configuring Local Area Networks

Your CN3 is a versatile mobile computer that easily adds to your wired or wireless data collection network. You can connect your computer to a network using:

- USB communications.
- Ethernet communications.
- 802.11 radio communications.

Configuring USB Communications

You can place your computer in a single dock, multidock, modem dock, or vehicle dock to transfer data to and receive data from another device using USB communications. The USB cable and all of the docks are sold separately. For information on accessories and how to order them, see "Accessories" on page 131.

To use USB communications with your computer

1. Connect the dock to the USB port of the other device using an appropriate USB cable.
2. Make sure your USB device is configured for USB communications.
3. Insert the computer into the dock and turn it on.

A status box appears on the screen to show that the computer is making a USB connection.

Configuring Ethernet Communications

You can use your computer directly in an Ethernet network if you use the Ethernet and modem adapter and one of the communications docks. The modem adapter provides an RJ-45 connector off of it to connect to your Ethernet network.

To use your computer in an Ethernet network

1. Tap the iConnect icon ( ) in the lower right corner of the Today screen.

The iConnect pop-up menu appears:

2 Select **Enable** > **Ethernet**.

3 (Optional) Configure the IP Settings for the Ethernet Adapter if you are not using DHCP. DHCP is the default setting.

4 (Optional) If required for your network, you may also need to set these parameters on each computer:

- Primary and secondary DNS servers
- Primary and secondary WINS servers

5 Make sure that your computer is talking to the network and that the network can see your computer.

Configuring 802.11 Radio Communications

The CN3 Mobile Computer may have an internal 802.11 b/g radio to transfer data using wireless communications. This section of the manual assumes that you have already set up your wireless communications network including your access points. If you are using a UDP Plus network, have your Intermec Application Server communicate with a host computer.

Your computer supports these network protocols:

- TCP/IP
- UDP Plus

The next sections explain the parameters you need to configure for the CN3 to work in your wireless network.

Configuring the Network Parameters for a TCP/IP Network

In a TCP/IP network, the CN3 communicates with a host computer directly using TCP/IP. The access point acts as a bridge to allow communications between the wired network and the wireless network.

To use wireless communications in a TCP/IP network

1. Go to **Start** > **Settings** > the **Systems** tab > **Intermec Settings**.
2. Configure these network parameters on each CN3 in the network:
   - Network name (SSID)
   - IP settings (if not using DHCP)
3. Make sure the CN3 is talking to the network and that the network can see the CN3.
4. Configure security. For help, see "Configuring Security on the Wireless Network" on page 76.

The easiest way to configure the network parameters on the CN3 is to use Intermec Settings. For help, see"Configuring the Computer With Intermec Settings" on page 48.

Configuring the Network Parameters for a UDP Plus Network

In a UDP Plus network, the CN3 communicates with a host computer through the Intermec Application Server. The Intermec Application Server translates UDP Plus packets on the wireless network into TCP/IP packets on the wired networks and vice versa. The access point acts as a bridge to allow communications between the wired network and the wireless network.

To use wireless communications in a UDP Plus network

1. Go to **Start** > **Settings** > the **Systems** tab > **Intermec Settings**.
2. Configure these network parameters on the CN3:
   - Network name (SSID)
   - Controller IP address
   - IP settings (if not using DHCP)
   - Network port
3. Make sure the CN3 is talking to the network and that the network can see the CN3.
4. Configure security. For help, see "Configuring Security on the Wireless Network" on page 76.

Checking the Status of Your Wireless Connection

After you configure your wireless settings, you can use iConnect to check the status of your connection.

To check the status of your wireless connection

1. Tap the iConnect icon ( ) in the lower right corner of the Today screen.
2. From the iConnect menu, select **Status** > **Wireless**. The Wireless Status screen appears and checks the connection.

You can also use iConnect to configure or change the network settings by tapping **Tools** > **Wireless Settings** from the iConnect menu.

To test the connection of the CN3 against your network

- From the iConnect menu, select **Tools** > **Ping Test**.

Viewing Detailed 802.11 Radio Connection Information

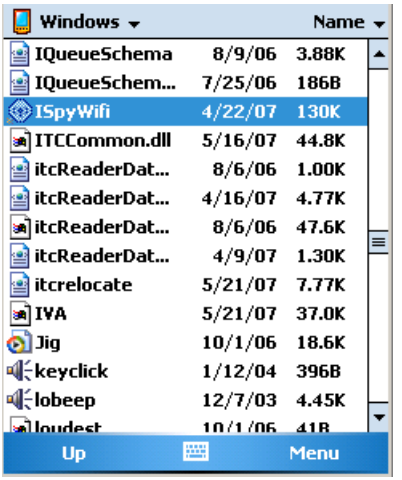
Use the ISpyWiFi to view detailed information for the 802.11 radio connection in your CN3, such as MAC address, access point information, association, encryption, power management, antenna status, RSSI, data link rates, and supplicant status.You can also use ISpyWiFi to scan for access points in your network and ping for detailed information.

The ISpyWiFi utility is installed in your CN3 as an executable. You can either start the utility using File Explorer or create a shortcut to start the utility from the CN3 desktop.

To start the ISpyWiFi utility with File Explorer

1. Tap **Start** > **Programs** > **File Explorer**.

2 Navigate to the Windows folder and scroll down to find **ISpyWiFi**.



3 Double-tap **ISpyWifi**.

To add an ISpyWiFi shortcut to the CN3 Programs folder

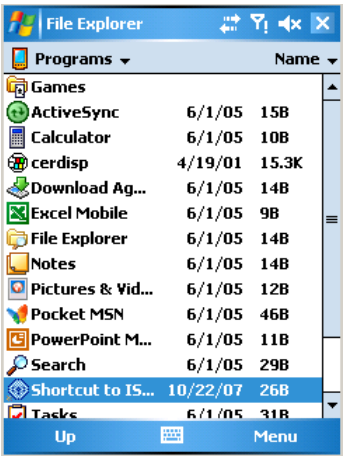
1 Press and hold your stylus on the ISpyWiFi executable until the pop-up menu appears.

2 Select **Copy** from the pop-up menu.

3 Navigate to the Windows\Start Menu\Programs folder on the CN3

4 Press and hold the stylus in the empty area at the bottom of the screen until the pop-up menu appears.

5 Select **Paste Shortcut**.



6 Close File Explorer.

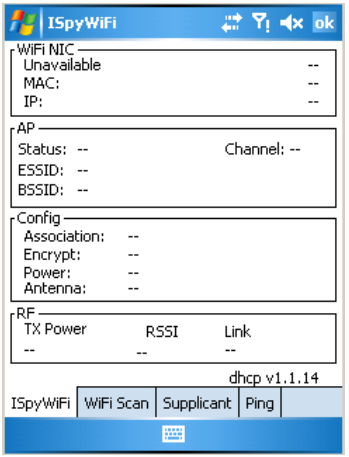
7 Select **Start** > **Programs** to locate the Shortcut to ISpyWiFi.

8 Tap **Shortcut to ISpyWiFi** to open the utility.

To view the ISpyWiFi tab

- Tap the **ISpyWiFi** tab.

The ISpyWiFi tab contains network interface, configuration, access point, and radio frequency information.



The ISpyWiFi Tab

Use the following tables to understand the ISpyWiFi information.

Understanding the ISpyWiFi Tab

Setting	Description
BCMCFI	A WLAN adapter and its associated driver version.
MAC	The client radio MAC address.
IP (DHCP)	The IP address of the client radio, if using DHCP.
IP (static)	The IP address of the client radio, if using a static IP address.
Status	Shows whether the radio is associated with the access point.
Channel	The channel on which the radio is communicating with the access point.
ESSID	The text SSID for your network.
BSSID	The MAC address of the access point that the client radio is communicating with.
Association	Shows the type of association: Open, WPA, WPA-PSK, WPA2, or Network EAP
Encrypt	Shows potential encryption for the association.
Power	CAM (Constantly Awake Mode) or FAST PSP (Power Save Poll)
Antenna	Diversity (multiple antennas, Primary (one antenna)
TX Power	Transmit power level in milliwatts (mW).
RSSI	The Received Signal Strength Indicator. The closer to zero, the better for this indicator.
Link	The data rate at which the radios are communicating.

Use the WiFi Scan tab to scan your network and bring back information about any access points with which you can communicate.

To use the WiFi Scan tab

1. Tap the **WiFi Scan** tab.
2. Tap the **Scan** button.
3. Tap any of the columns to sort in ascending or descending order.

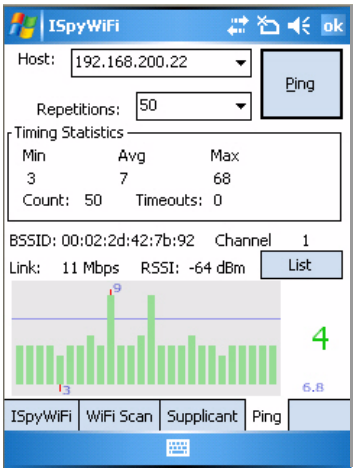
Use the Supplicant tab to view information on security and authentication settings that you have configured on the CN3.

The Supplicant Tab

To use the Supplicant tab

- Click **Configure Profile** to launch the Profile Wizard and configure 802.11 options.
- Click **Reconnect** to disassociate the radio, momentarily dropping its connection. The radio then reassociates and reauthenticates, but does not do anything with the driver.
- Click **Clear Events** to remove the information shown in the Supplicant Event box.

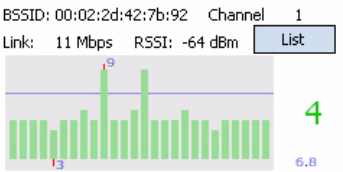
Use the Ping tab to contact with any host in your network for information.



The Ping Tab

To ping a host

1. From the **Host** drop-down list, select an IP address for the host you want to ping. Enter a new IP address using the input panel or the keypad. Select **Clear List** to remove all the IP addresses from the drop-down list.
2. From the **Repetitions** drop-down list, select the number of times to ping the selected host. These repetitions are done once per second.
3. Tap **Ping** to initiate contact with the selected host.
4. Depending on how the screen is set up, you can toggle between a graph and a list of ping results:
   - Tap **Graph** to toggle to the graphical view of 25 of the most recent pings and their response results, like in the following sample graph:



- Tap List to toggle to detailed information showing what ping touched what host and the RTT (Round Trip Time).

Configuring the Phone

The CN3 supports two types of cellular phone technology:

- CDMA EV-DO Rev 0
- GSM/EDGE

With a radio module installed in the CN3, you can send and receive telephone calls as well as transmit data through wide-area (WAN) cellular networks.

The CN3 provides a phone speaker, microphone, and speakerphone. It also supports the use of a Bluetooth headset or hands-free kit. The factory default setting for the phone is disabled.

After you have turned on the phone and activated it, you can customize the features of the phone and network settings. For help, refer to the online help on your CN3.

Turning On the Phone Using the Wireless Manager

You can use the Wireless Manager application to turn on the phone if Microsoft Zero Configuration is enabled. If you have Intermec Security enabled, you cannot access the Wireless Manager. For information on enabling and configuring Microsoft security, see **"Configuring Microsoft Security" on page 96**.

You can use the Wireless Manager to enable and disable Bluetooth, Wi-Fi, and the phone if it is built into your CN3.

To turn on the phone using the wireless manager

1. Tap **Start** > **Settings** > the **Connections** tab > **Wireless Manager**.
2. In the Wireless Manager, tap **Phone**. The phone turns on.

3 Tap **Menu** > **Phone Settings** to configure the phone. For help, see the next procedure, "Activating the CDMA Phone."

4 Tap **Done** to close the Wireless Manager.

Activating the CDMA Phone

The CDMA WAN radio module is installed at the factory. To activate your CDMA CN3 device, you need to contact the carrier you have chosen and set up accounts for each device. Use the following table to view the carriers that Intermec currently supports. If your carrier is not listed in the table, please contact Intermec product support to see if it is now supported.

Currently Supported Carriers

Country	Carriers
United States	Alltel, Sprint, Verizon
Canada	Bell Mobility, Telus
New Zealand	Telecom New Zealand

The carrier will require the Electronic Serial Number (ESN) to start the activation process. You can find the ESN:

- on a label located in the upper right corner of the battery compartment.
- on the outside of the CN3 shipping box.

The activation process is slightly different for each CDMA carrier. Your carrier sales contact and an Interme representative can guide you through the process.

After you supply the ESN to your carrier, they will respond with values that you must enter using the Windows Mobile Activation Wizard (if required). Some of the supported carriers do not require you to enter any values. The following table shows the carriers, the correct activation method to use, and the values that you need to activate your phone.

Values Required for CDMA Phone Activation

Carrier	Activation Method	Activation Values You Need
Alltel	Dial *22899	None - all parameters are automatically transferred wirelessl.y The Activation Wizard is disabled for Alltel.
Bell Mobility	Activation Wizard	• Service Programming Code (SPC), also called the activation code • Mobile Directory Number (MDN) • Mobile Station Identification Number (MSIN) • System ID (SID) • Network ID (NID) • Mobile Country Code (MCC) • Mobile Network Code (MNC) • Username • Password
Sprint	Activation Wizard	• Master Subsidy Lock (MSL), also called the activation code • MDN • Mobile Station Identifier (MSID)
Telecom New Zealand	Activation Wizard	• SPC • SID • NID
Telus	Dial *22803	None - all parameters are automatically transferred wirelessly.
Verizon	Dial *22899	None - all parameters are automatically transferred wirelessly. You can also use the Activation Wizard with Verizon.

After you complete the activation process, the settings you enter are permanently stored in the CDMA module. Changing the OS or SSPB loads will not affect any of the settings or activation parameters stored in the WAN modem.

To start the Activation Wizard

1. Tap **Start** > **Phone** from the Today screen.
2. In the Phone application, tap **Menu** > **Activation Wizard** from the bottom of the screen.

Activating the GSM/EDGE Phone

You use a SIM card to activate the GSM/EDGE phone on the CN3. You can purchase the SIM card from your network provider. You insert the SIM card in the miniSD/SIM door in the back of the CN3. For more information, please contact your local Intermec representative.

To insert the SIM card

1. Press the **Power** button to suspend the CN3, and then remove the battery pack from the back of the CN3.
2. Remove the two screws from the miniSD/SIM door.
3. Lift the door and insert the SIM card into the card slot with the metal contacts facing outward.
4. Close the miniSD/SIM door and insert the two screws. Tighten the screws to 1.5 in-lbs torque.
5. Replace the battery pack.

The CN3 cold boots and you can start using your phone.

Making a Phone Call

After you activate your phone, you are ready to start making phone calls.

To make a phone call

1. Tap **Start** > **Phone**.
2. Tap the keys to enter the telephone number you want to call.
3. Tap the **Talk** button.

Connecting to an ISP

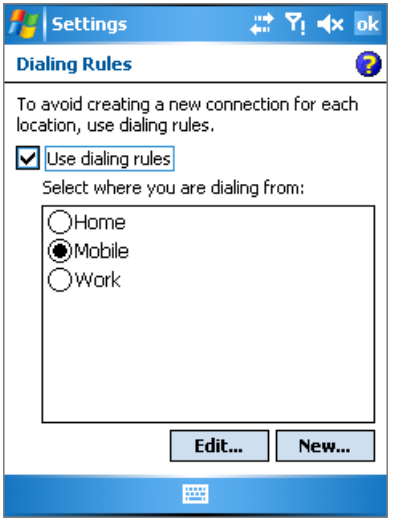
You can connect to your Internet Service Provider (ISP), and use the connection to send and receive e-mail messages and view web pages. Get an ISP dial-up access telephone number, a user name, and a password from your ISP.

Tap the **Help** icon at any time to view additional information for the wizard or the settings.

To connect to an Internet service provider

1. Tap **Start** > **Settings** > **Connections**.
2. Under My ISP, tap **Add a new modem connection**.

3. Enter a name for the connection, such as “ISP Connection.”
4. If using an external modem connected to your CN3 with a cable, select **Hayes Compatible on COM1** from the Select a modem drop-down list.
5. Tap **Next**.
6. Enter the access phone number and then tap **Next**.
7. Enter the **User name**, **Password**, and **Domain** (if provided by an ISP or your network administrator).
8. Tap **Finish**.
9. Tap the **Advanced** tab from the Connections screen and then tap **Dialing Rules**.



10 Select **Use dialing rules**, tap **OK** at the dialog box, and then tap **Edit**.

11 Specify your current phone type and then tap **ok** until you exit and return to the Settings page.

Once the CN3 is connected, you can:

- send and receive message by using Messaging (Outlook E-mail).
- visit web pages by using Internet Explorer Mobile. For more information, see **"Using Internet Explorer Mobile" on page 45**.

Connecting to a Private Network With a RAS Account

If you have access to a network at work, you can send e-mail messages, view intranet pages, synchronize your CN3, and possibly access the Internet. Create a modem connection through a RAS (Remote Access Server) account. Before you can create this modem connection, your network administrator needs to set up a RAS account for you. Your network administrator may also give you Virtual Private Network (VPN) settings.

Tap the **Help** icon at any time to view additional information for the wizard or the settings.

To connect to a private network

1. Tap **Start** > **Settings** > **Connections**.
2. Under My Work Network, tap **Add a new modem connection**.

3. Enter a name for the connection, such as "Company Connection."
4. Select your modem type.
   - If using an external modem connected to your CN3 with a cable, select **Hayes Compatible on COM1** from the Select a modem drop-down list.
   - If using any type of external modem, select the modem by name. If a listing does not exist for your modem, select **Hayes Compatible on COM1.**
5. Tap **Next**.
6. Enter the access phone number and then tap **Next**. Use these guidelines when entering a phone number:
   - Enter the phone number exactly as you want it dialed. For example, if you call from a business complex or hotel that requires a nine before dialing out, enter 9 in front of the phone number.
   - Enter the access point name (APN) provided by your mobile phone service provider.

- If you want to use dialing rules, see the online help for information.

7 Enter the **User name**, **Password**, and **Domain** (if provided by an ISP or your network administrator).

8 Tap **Finish**.

Connecting to a Private Network with a VPN Server

A VPN connection helps you to securely connect to servers, such as a corporate network, through the Internet. Before you can make a VPN connection, you will need the following items from your network administrator:

- User name
- Password
- Domain name
- TCP/IP settings
- Host name or IP address of the VPN server

To create a VPN server connection to work

1 Tap **Start** > **Settings** > **Connections**.

2 Under My Work Network, tap **Add a new VPN connection**.

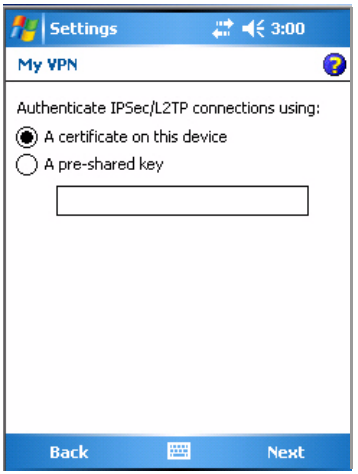
3 In the **Name** field, enter a name for the connection, such as your company name.

4 In the **Host name / IP** field, enter the VPN server name or IP address.

5 Select the **VPN type** of authentication to use with your CN3. If you are not sure which option to choose, check with your network administrator.

6 Tap **Next**.

7 Select a way for the CN3 to authenticate the connection. If you select **A pre-shared key**, enter the key provided by your network administrator.



8 Click **Next**.

9 Enter the **User name**, **Password**, and **Domain** (if provided by an ISP or your network administrator).

10 Tap **Finish**.

11 Insert the necessary equipment, such as a network card, into the CN3 and begin connecting.

Configuring Security on the Wireless Network

Your wireless adapter (network interface card) connects to wireless networks of two types: infrastructure networks and ad-hoc networks.

- Infrastructure networks connect you to your corporate network and the internet. Your computer establishes a wireless connection to an access point, which links you to the rest of the network.
- Ad-hoc networks are private networks shared between two or more clients, even without an access point.

Each wireless network is assigned a name (or SSID) to allow multiple networks to coexist in the same area without infringement.

Intermec recommends using security measures with wireless networks to prevent unauthorized access to your network and to ensure the privacy of transmitted data. These elements are required for secure networks:

- Authentication by both the network and the user
- Authentication is cryptographically protected
- Transmitted data

There are many schemes available to implement these features. Use the following tables to understand the common terminology for wireless network security.

Encryption Terminolog y

Acronym	Description
AES	Advanced Encryption Standard. A block cipher, a type of symmetric key cipher that uses groups of bits of a fixed length - called blocks. A symmetric key cipher is a cipher using the same key for both encryption and decryption. As implemented for wireless, this is also known as CCMP, which implements AES as TKIP and WEP are implementations of RC4.
CKIP	Cisco Key Integrity Protocol. This protocol is Cisco's version of the TKIP protocol, compatible with Cisco Aironet products.

Encryption Terminolog (continued)y

Acronym	Description
TKIP	Temporal Key Integrity Protocol. This protocol is part of the IEEE 802.11i encryption standard for wireless LANs, which provides per-packet key mixing, a message integrity check and a re-keying mechanism, thus overcoming most of the weak points of WEP. This encryption is more difficult to crack than the standard WEP. Weak points of WEP include: No Initiation Vector (IV) reuse protection, weak keys, no protection against message replay, no detection of message tampering, and no key updates.
WEP	Wired Equivalent Privacy encryption. With preconfigured WEP, both the client CN3 and access point are assigned the same key, which can encrypt all data between the two devices. WEP keys also authenticate the CN3 to the access point - unless the CN3 can prove it knows the WEP key, it is not allowed onto the network. WEP keys are only needed if they are expected by your clients. There are two types available: 64-bit (5-character strings, 12345) (default) and 128-bit (13-character strings, 1234567890123).

Key Management Protocols Terminology

Acronym	Description
WPA	Wi-Fi Protected Access. This is an enhanced version of WEP that does not rely on a static, shared key. It encompasses a number of security enhancements over WEP, including improved data encryption via TKIP and 802.11b/g authentication with EAP. WiFi Alliance security standard is designed to work with existing 802.11 products and to offer forward compatibility with 802.11i.
WPA2	Wi-Fi Protected Access. Second generation of WPA security. Like WPA, WPA2 provides enterprise and home Wi-Fi users with a high level of assurance that their data remains protected and that only authorized users can access their wireless networks.

Authentication Terminology

Acronym	Description
EAP	Extensible Authentication Protocol. 802.11b/g uses this protocol to perform authentication. This is not necessarily an authentication mechanism, but is a common framework for transporting actual authentication protocols. Intermec provides a number of EAP protocols for you to choose the best for your network.
EAP-FAST	Flexible Authentication via Secure Tunneling. A publicly accessible IEEE 802.1X EAP type developed by Cisco Systems. It is available as an IETF informational draft. An 802.1X EAP type that does not require digital certificates, supports a variety of user and password database types, supports password expiration and change, and is flexible, easy to deploy, and easy to manage.
EAP-PEAP	Protected Extensible Authentication Protocol. Performs secure authentication against Windows domains and directory services. It is comparable to EAP-TTLS both in its method of operation and its security, though not as flexible. This does not support the range of inside-the-tunnel authentication methods supported by EAP-TTLS. Microsoft and Cisco both support this protocol.
EAP-TLS	Transport Layer Security. Based on the TLS (Transport Layer Security) protocol widely used to secure web sites. This requires both the user and authentication server have certificates for mutual authentication. While cryptically strong, this requires corporations that deploy this to maintain a certificate infrastructure for all users.

Authentication Terminology (continued)

Acronym	Description
LEAP	Lightweight Extensible Authentication Protocol. Also known as Cisco-Wireless EAP, provides username/password based authentication between a wireless client and a RADIUS server. In the 802.1x framework, traffic cannot pass through a wireless network access point until it successfully authenticates itself.
EAP-TTLS	Tunneled Transport Layer Security. This protocol provides authentication like EAP-TLS but does not require certificates for every user. Instead, authentication servers are issued certificates. User authentication is done using a password or other credentials that are transported in a securely encrypted "tunnel" established using server certificates. EAP-TTLS works by creating a secure, encrypted tunnel through which you present your credentials to the authentication server. Thus, inside EAP-TTLS there is another inner authentication protocol that you must configure via Additional TTLS Settings.

The CN3 provides three types of security for your wireless network: Wi-Fi Protected Access 2 (WPA2/802.11i), WPA, and WEP. 802.1x should be referred to as an authentication method used for WPA and WPA2. Another authentication method for WPA and WPA2 would be the Pre-Shared Key (PSK).

Choosing Between Microsoft and Funk Security

Before you can implement a security solution on the CN3, you need to choose between Microsoft and Funk security:

- By default, Funk security is enabled. It provides everything you get with Microsoft security plus the addition of Cisco Compatible Extensions features. It also provides additional authentication types like EAP-TTLS, LEAP, and EAP-FAST.

- Microsoft security, with its Microsoft Zero Config feature, is also available. To switch to Microsoft security, go to "Configuring Microsoft Security" on page 96 to start.

Note: Your security choice does not depend on your authentication server. For example, you can choose Funk security if you use Microsoft Active Directory® to issue certificates.

If you want to use the default Funk security, you need to select a profile. For help, see one of the following sections, "Configuring Funk Security Using Intermec Settings" on this page or "Configuring Funk Security Using the Profile Wizard" on page 84.

If you want to use Microsoft security, you need to select it as your security choice. For help, see "Configuring Microsoft Security" on page 96.

Configuring Funk Security Using Intermec Settings

You can define up to four profiles for Funk security. Different profiles let your CN3 communicate in different networks without having to change all of your security settings. For example, you may want to set up one profile for the manufacturing floor and one for the warehouse. By default, the active profile is Profile_1.

To select a profile for Funk security

1. Select **Start** > **Settings** > the **Systems** tab > **Intermec Settings**.
2. Select **Communications** > **802.11 Radio** > **Funk Security**.
3. Select **Active Profile**, choose a profile from the list, and save your settings.
4. Tap the active profile to expand it.
5. (Optional) Give your profile a meaningful name:
   - Select Profile Label and a text box appears.
   - Select the text in the box, type a meaningful name, and save your settings.
6. Select one profile as the active profile by tapping Active Profile and choosing a profile fro the drop-down list.
7. Save your settings.

Configuring WPA Security With Funk Security

Use these procedures to set WPA-802.1x, WPA2-802.1x, WPA-PSK, or WPA2-PSK security on your CN3 with Funk security.

To configure WPA-802.1x or WPA2-802.1x with Funk security

1. Make sure you have configured the communications and radio parameters on your CN3.
2. Make sure you have selected Funk as your security choice.
3. Open Intermec Settings.
4. Choose **Communications** > **802.11 Radio** > **Funk Security** > **Profile**.
5. For **Association**, choose **WPA** or **WPA2** and press **Enter**. Encryption automatically defaults to TKIP if you are using WPA. Encryption automatically defaults to AES if you are using WPA2.
6. For **8021x**, choose **TTLS**, **PEAP**, **EAP-FAST**, or **TLS** and press **Enter**.

   If you choose TTLS or PEAP:

   a. For **Prompt for Credentials**, choose **Enter credentials now**.

   Note: You can use Prompt for credentials to troubleshoot your connection to the network if you have problems.

   b. Select **User name** and type your user name.

   c. Select **User Password** and type a user password.

   d. For **Validate Server Certificate**, choose **Yes**.

   Note: You must have the date on the CN3 set correctly when you enable Validate Server Certificate.

   If you choose TLS:

   a. Load a user and root certificate on your CN3. For help, see "Loading a Certificate" on page 99.

   b. For **Validate Server Certificate**, choose **Yes**.

c You must enter a **User Name** and **Subject Name**. You can also enter a **Server Common Name** if you want to increase your level of security.

7 Exit Intermec Settings.

To enable WPA-PSK or WPA2-PSK with Funk security

1 Make sure you have configured the communications and radio parameters on your CN3.

2 Make sure you have selected Funk as your security choice.

3 Open Intermec Settings.

4 Choose **Communications** > **802.11 Radio** > **Funk Security** > **Profile**.

5 For **Association**, choose **WPA** or **WPA2**.

6 For **8021x**, choose **None**.

7 For **Pre-Shared Key**, enter the pre-shared key or the passphrase.

The pre-shared key must be a value of 32 hex pairs preceded by 0x for a total of 66 characters. The value must match the key value on the access point. The passphrase must be from 8 to 63 characters. After you enter a passphrase, the CN3 internally converts it to a pre-shared key.

This value must match the passphrase on the authenticator.

8 Exit Intermec Settings.

Configuring 802.1x Security With Funk Security

1 Make sure you have configured the communications and radio parameters on your CN3.

2 Make sure you have selected Funk as your security choice.

3 Open Intermec Settings.

4 Choose **Communications** > **802.11 Radio** > **Funk Security** > **Profile**.

5 For **Association**, choose **Open**.

6 For **Encryption**, choose **WEP**.

7 For **Authentication**, choose **TTLS**, **PEAP**, or **TLS**.

If you choose TTLS or PEAP:

a Select **User name** and type your user name.

b Select **Password prompt**, and choose **Enter password now**.

Note: You can use **Prompt for password** to troubleshoot your connection to the network if you have problems.

c Select **User Password** and type a user password.

d For **Validate Server Certificate**, choose **Enabled**.

If you choose TLS:

a Load a user and root certificate on your CN3. For help, see "Loading a Certificate" on page 99.

b For **Validate Server Certificate**, choose **Yes**.

c You must enter a **User Name** and **Subject Name**. You can also enter a **Server Common Name** if you want to increase your level of security.

8 Exit Intermec Settings.

Configuring LEAP Security on the CN3

1 Make sure you have selected Funk as your security choice.

2 Make sure you have configured the communications and radio parameters on your CN3.

3 From Intermec Settings, choose **Communications** > **802.11 Radio** > **Funk Security** > **Profile**.

4 For **8021x**, choose **LEAP**.

5 For **Association**, choose **Open**, **WPA**, **WPA2**, or **Network EAP**. Encryption automatically defaults to TKIP if you choose WPA, to AES if you choose WPA2, and to WEP if you choose Open or Network EAP.

6 For **Prompt for Credentials**, choose **Enter credentials now**.

7 Select **User name** and type your user name.

8 Select **User Password** and type a user password.

9 Exit Intermec Settings.

Configuring Static WEP Security With Funk Security

1. Make sure you have selected Funk as your security choice.
2. Make sure you have configured the communications and radio parameters on your CN3.
3. Open Intermec Settings.
4. Choose **Communications** > **802.11 Radio** > **Funk Security** > **Profile**.
5. For **Association**, choose **Open**.
6. For **Encryption**, choose **WEP**.
7. For **8021x**, choose **None**.
8. Define a value for the keys you want to use. You can define up to four keys (**Key 1** through **Key 4**).

   Enter an ASCII key or a hex key that is either 5 bytes or 13 bytes long depending on the capability of the radio. Set a 5-byte value for 64-bit WEP or a 13-byte value for 128-bit WEP. Hex keys must be preceded by 0x and contain 5 or 13 hex pairs.
9. For **Transmit key**, choose the key you want to use for transmitting data.
10. Exit Intermec Settings.

Configuring Funk Security Using the Profile Wizard

You can start 802.11 b/g communications on the CN3 using the Profile Wizard. A profile contains all the information necessary to authenticate you to the network, such as login name, password or certificate, and protocols by which the CN3 is authenticated. You can have up to four profiles for different networks. For example, you may have different login names or passwords on different networks.

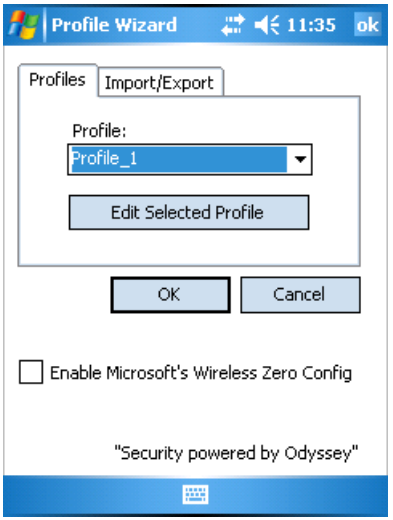
To select a profile for Funk security

1. Select **Start** > **Settings** > the **Systems** tab > **Wireless Network**.

   or

   Tap the iConnect icon ( ) in the lower right corner of the Today screen and select **Tools** > **Wireless Settings**.

The Profile Wizard appears.



2 From the **Profile** list, select the profile you want to configure.

3 Tap **Edit Selected Profile**.

4 (Optional) Give your profile a meaningful name by selecting the text in the Profile Label text box and typing a meaningful name.

5 From the **Network type** list, select either **Infrastructure** or **Ad-Hoc**.

Select Infrastructure if the network uses access points to connect to the corporate network or internet. Select Ad-Hoc to set up a private network with one or more participants.

6 Enter the **SSID (Network Name)** if different than the profile name.

7 (Optional) Check the **Enable Power Management** box to conserve battery power.

8 Click **OK**.

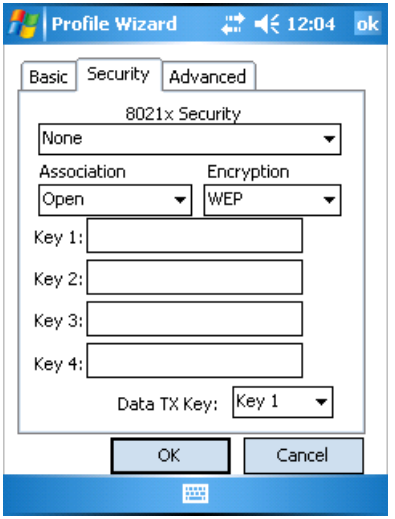
Configuring WEP Security With Profile Wizard

1 In the Profile Wizard, select the **Security** page.

2 For **8021x Security**, choose **None**.

3 For **Association**, choose **Open** or **Shared** to match the settings on your access point.

4 For **Encryption**, choose **WEP**.



5 From the **Data TX Key** list, select the key you want to use for transmitting data.

6 Define a value for the keys you want to use. You can define up to four keys (**Key 1** through **Key 4**).

Enter an ASCII key or a hex key that is either 5 bytes or 13 bytes long depending on the capability of the radio. Set a 5-byte value for 64-bit WEP or a 13-byte value for 128-bit WEP. Hex keys must be preceded by 0x and contain 5 or 13 hex pairs.

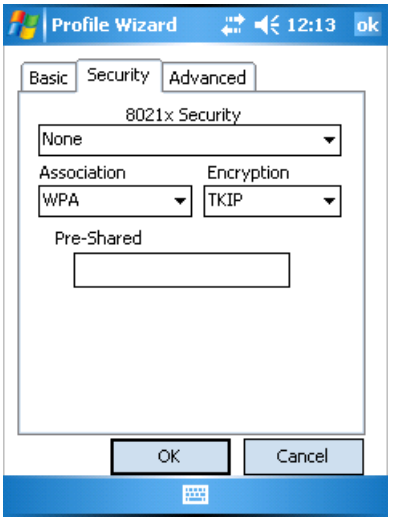
7 Tap **OK**.

Configuring WPA-PSK Security With Profile Wizard

1 In the Profile Wizard, select the Security page.

2 For 8021x Security, choose **None**.

3 For Association, choose **WPA**.



4 For **Pre-Shared Key** field, enter the passphrase as ASCII. The passphrase must be 8 to 63 characters and match the passphrase on the access point.

5 Tap **OK**.

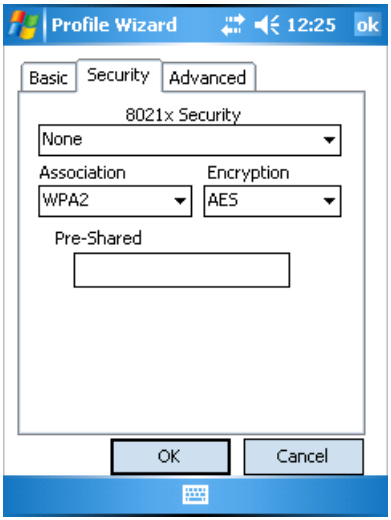
Configuring WPA2-PSK Security With Profile Wizard

1 In the Profile Wizard, select the **Security** page.

2 For **8021x Security**, choose **None**.

3 For **Association**, choose **WPA2**.

4 For **Encryption**, choose **TKIP** or **AES**.



5 For **Pre-Shared Key** field, enter the passphrase as ASCII (12345).

6 Tap **OK**.

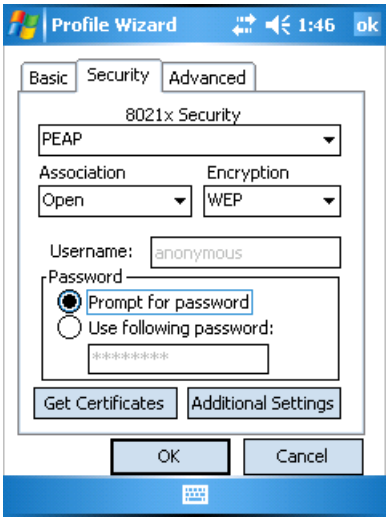
Configuring PEAP Security With Profile Wizard

Protected EAP (PEAP) performs secure authentication against Windows domains and directory services. It is comparable to EAP-TTLS, though not as flexible.

To configure PEAP security

1 In the Profile Wizard, select the **Security** page.

2 For **8021x Security**, choose **PEAP**.



3 For **Association**, choose **Open**, **WPA**, **WPA2**, or Network EAP.

4 For **Encryption**, choose **TKIP** or **AES** if you selected WPA2 for association, or **WEP** or **CKIP** if you selected Network EAP for association.

5 For **Username**, type a unique username for this protocol.

6 In the **Password** field, type a unique password for this protocol.

7 Select **Prompt for password** to have the user enter this password each time to access the protocol, or select **Use following password** to use the protocol without entering a password each time you use the CN3.

8 Tap **Get Certificates** to obtain or import server certificates. For help with certificates, see **"Loading a Certificate" on page 99**.

9 Tap **Additional Settings** to assign an inner PEAP authentication and set options for server certificate validation and trust.

10 From the **Inner PEAP Authentication** list, choose **EAP/MS-CHAP-V2**, **EAT/Token Card**, or **EAP/MD5-Challenge**.

11 Check **Validate Server Certificate** to verify the identity of the authentication server based on its certificate when using PEAP.

12 Tap **Root CA**, select a root certificate, and then tap **OK**.

13 Enter the Common Names of trusted servers.

14 Tap **OK**.

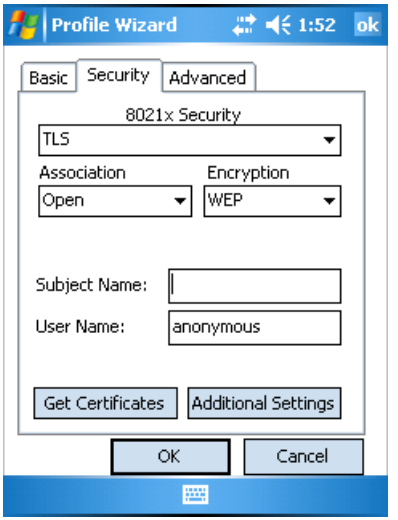
Configuring TLS Security With Profile Wizard

EAP-TLS is a protocol based on the Transport Layer Security (TLS) protocol widely used to secure web sites. This protocol requires both the user and authentication server to have certificates for mutual authentication.

To configure TLS security

1 In the Profile Wizard, select the **Security** page.

2 For **8021x Security**, choose **TLS**.



3 For **Association**, choose **Open**, **WPA**, **WPA2**, or **Network EAP**.

4 For **Encryption**, choose **TKIP** or **AES** if you selected WPA2 for association, or **WEP** or **CKIP** if you selected Network EAP for association.

5 For **Subject Name**, type a unique subject name for this protocol.

6 For **User Name**, type a unique user name for this protocol.

7 Tap **Get Certificates** to obtain or import server certificates. For help with certificates, see **"Loading a Certificate" on page 99**.

8 Tap **Additional Settings** to server certificate validation and trust.

9 Check **Validate Server Certificate** to verify the identity of the authentication server based on its certificate when using TLS.

10 Tap **Root CA**, select a root certificate, and then tap **OK**.

11 Enter the Common Names of trusted servers.

12 Tap **OK**.

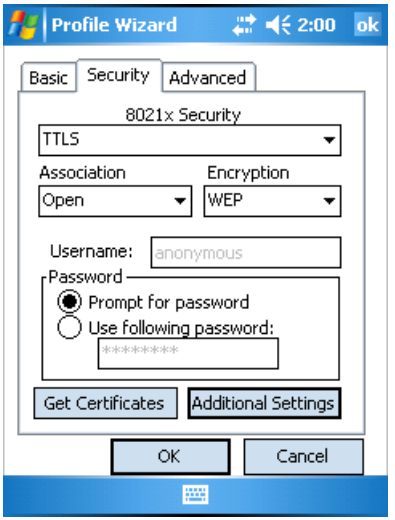
Configuring TTLS Security With Profile Wizard

TTLS protocol provides authentication like EAP-TLS but does not require user certificates. User authentication is done using a password or other credentials that are transported in a securely encrypted "tunnel" established using server certificates.

To configure TTLS security

1 In the Profile Wizard, select the **Security** page.

2 For **8021x Security**, choose **TTLS**.



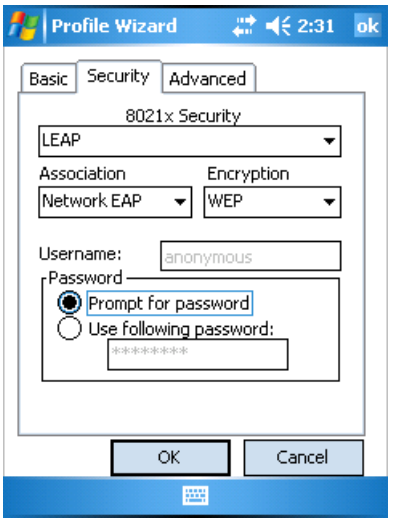
3. For **Association**, choose **Open**, **WPA**, **WPA2**, or **Network EAP**.
4. For **Encryption**, choose **TKIP** or **AES** if you selected WPA2 for association, or **WEP** or **CKIP** if you selected Network EAP for association.
5. For **Username**, type a unique username for this protocol.
6. In the **Password** field, type a unique password for this protocol.
7. Select **Prompt for password** to have the user enter this password each time to access the protocol, or select **Use following password** to use the protocol without entering a password each time you use the CN3.
8. (Optional) Tap **Get Certificates** to obtain or import server certificates. For help with certificates, see **"Loading a Certificate" on page 99**.
9. Tap **Additional Settings** to assign an inner TTLS authentication, inner EAP, and set options for server certificate validation and trust.
10. From the **Inner TTLS Authentication** list, choose **PAP**, **CHAP**, **MS-CHAP**, **MS-CHAP-V2**, **PAP/Token Card**, or **EAP**.
11. If you select EAP for the inner authentication protocol, select an inner EAP protocol from the **Inner EAP** list.
12. Check **Validate Server Certificate** to verify the identity of the authentication server based on its certificate when using TTLS.
13. Tap **Root CA**, select a root certificate, and then tap **OK**.
14. Enter the Common Names of trusted servers.
15. For **Anonymous EAP-TTLS Name**, type an outer identity to protect your login name or identity.
16. Tap **OK**.

Configuring LEAP Security With Profile Wizard

LEAP is the Cisco Lightweight version of EAP.

To configure LEAP security

1. In the Profile Wizard, select the **Security** page.
2. For **8021x Security**, choose **LEAP**.



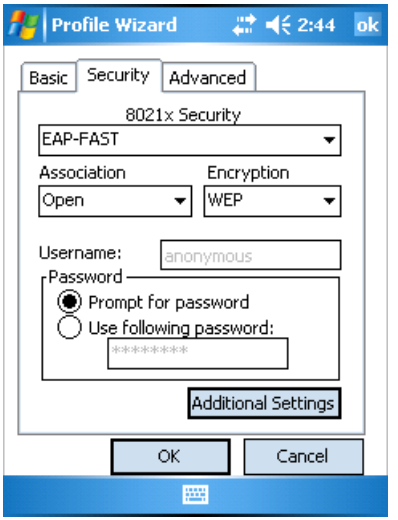
3. For **Association**, choose **Open**, **WPA**, **WPA2**, or **Network EAP**.
4. For **Encryption**, choose **TKIP** or **AES** if you selected WPA2 for association, or **WEP** or **CKIP** if you selected Network EAP for association.
5. For **Username**, type a unique username for this protocol.
6. In the **Password** field, type a unique password for this protocol.
7. Select **Prompt for password** to have the user enter this password each time to access the protocol, or select **Use following password** to use the protocol without entering a password each time you use the CN3.
8. Tap **OK**.

Configuring EAP-FAST with Profile Wizard

The EAP-FAST protocol is a client-server security architecture that encrypts EAP transactions with a TLS tunnel. While similar to PEAP, EAP-FAST differs significantly since tunnel establishment is based on strong secrets unique to users. These secrets are called Protected Access Credentials (PACs), which CiscoSecure ACS generates using a master key known only to CicsoSecure ACS. EAP-FAST does not require certificate management.

To configure EAP-FAST security

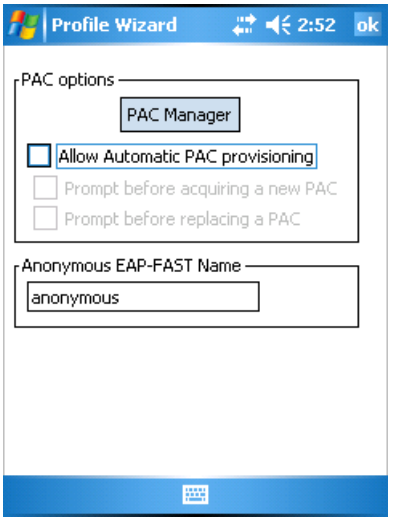
1. In the Profile Wizard, select the **Security** page.
2. For **8021x Security**, choose **EAP-FAST**.



3. For **Association**, choose **Open**, **WPA**, **WPA2**, or **Network EAP**.
4. For **Encryption**, choose **WEP** or **CKIP** if you selected Network EAP for association.
5. For **Username**, type a unique username for this protocol.
6. In the **Password** field, type a unique password for this protocol.

7 Select **Prompt for password** to have the user enter this password each time to access the protocol, or select **Use following password** to use the protocol without entering a password each time you use the CN3.

8 Tap **Additional Settings** to set options for PAC management and assign an anonymous EAP-FAST name.



9 Tap **PAC Manager** to view the PAC files currently installed on the CN3. Tap **ok** to return to the Additional Settings screen.

10 If you already have a PAC on the CN3, clear **Allow Automatic PAC provisioning** to avoid receiving more PACs from the server.

11 If you select **Allow Automatic PAC provisioning**, you can check:

- **Prompt before acquiring a new PAC** for notification of any incoming PACs.
- **Prompt before replacing a PAC** for notification whether to replace a current PAC with an incoming PAC.

12 For **Anonymous EAP-FAST Name**, type the outer identity assigned for public usage.

13 Tap **OK**.

Creating A Debug Log for Funk Security

If you reach a situation where you need to send in debug information to Intermec Product Support, you can use the Intermec Funk Security logging feature.

To enable the logging feature

1. In the Profile Wizard, select the **Advanced** tab.
2. Select **Enable Logging** and then tap **OK**.

Configuring Microsoft Security

The default security setting is Funk. If you want to use Microsoft security, you need to select it as your security choice. After you select Microsoft as your security choice, you will be prompted to save your settings and reset your computer for your change to take effect.

To select Microsoft security as your security choice

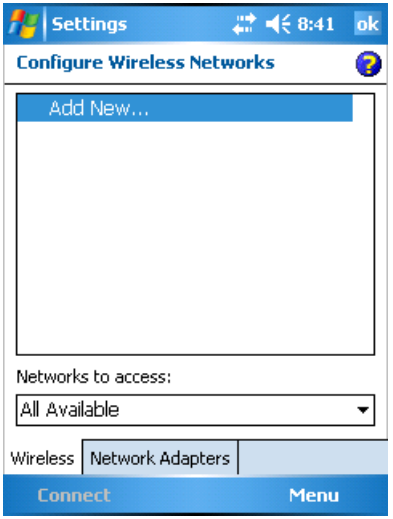
1. Select **Start** > **Settings** > the **System** tab > **Intermec Settings**. The Intermec Settings application appears.
2. Select **Communications** > **802.11 Radio** > **Security Choice**.
3. From the Security Choice list, select **Microsoft Security** and save your settings. An alert box appears telling you that you must save your settings and warm boot the CN3 for the new security choice to take effect.
4. Tap **Yes**. The CN3 resets and starts with Microsoft Security as the Security Choice.

Networks already configured are preferred networks. You can connect to only preferred networks or search for and connect to any available network.

You can add a wireless network when the network is detected or manually by entering settings information. To determine if authentication information is needed, see your network administrator.

To configure Microsoft security

1 Select **Start** > **Settings** > the **Connections** tab > **WiFi** > **Add New**.



2 Enter a **Network name**. If the network was detected, the network name is entered and cannot be changed.

3 From the **Connects to** list, select where you want your network to connect:

- If you select Work, you can create a VPN connection or use proxy servers.
- If you select The Internet, you can connect directly to the internet.

4 (Optional) To connect to an ad-hoc connection, select **This is a device-to-device (ad-hoc) connection**.

5 Tap **Next**.

6 Follow these steps to disable authentication:

a Set **Authentication** to **Open** if WEP keys are not required or to Shared when WEP keys are required for association.

b Set **Data Encryption** to **Disabled**.

Follow these steps to enable WEP encryption:

a Set **Authentication** to **Open** if WEP keys are not required or to Shared when WEP keys are required for association.

b Set **Data Encryption** to **WEP**.

c To change the network key, clear **The key is automatically provided** check box, enter the new **Network key**, and then select the appropriate **Key index**.

Follow these steps to enable WPA authentication:

a Set **Authentication** to **WPA**.

b Set **Data Encryption** to either **WEP** or **TKIP**.

Follow these steps to enable WPA authentication using a preshared key:

a Set **Authentication** to **WPA-PSK**.

b Set **Data Encryption** to either **WEP** or **TKIP**.

c Enter the new **Network key**.

Follow these steps to enable WPA2 authentication:

a Set **Authentication** to **WPA2**.

b Set **Data Encryption** to **AES** or **TKIP**.

c Enter the new **Network key**.

Follow these steps to enable WPA2 authentication using a preshared key:

a Set **Authentication** to **WPA2-PSK**.

b Set **Data Encryption** to **AES** or **TKIP**.

c Enter the new **Network key**.

7 Tap **Next**.

8 From the **EAP type** list, select either **PEAP** or **Smart Card or Certificate** and then tap **Finish**.

9 From the **Networks to access** list, select **All Available**, **Only access points**, or **Only computer-to-computer**.

10 Tap **ok** to close the screen.

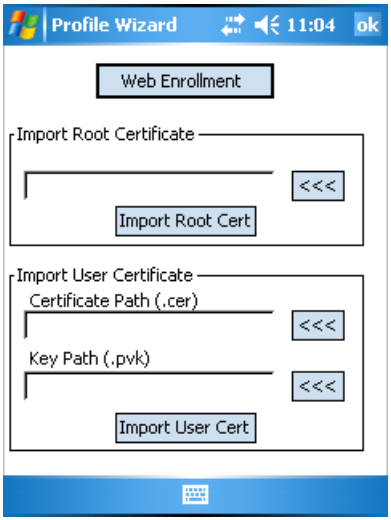
Note: If you select to automatically connect to non-preferred networks, the CN3 detects any new networks and provides you with the opportunity to configure them.

Loading a Certificate

If you choose to use transport layer security (TLS) with WPA or 802.1x security, you need to have a unique client certificate on the CN3 and a trusted root certificate authority (CA) certificate. Certificates are pieces of cryptographic data that guarantee a public key is associated with a private key. They contain a public key and the entity name that owns the key. Each certificate is issued by a certificate authority.

To import a root certificate

1 Tap the <<< button next to the **Import Root Certificate** field to select the root certificate (DER-encoded .cer file) to import.



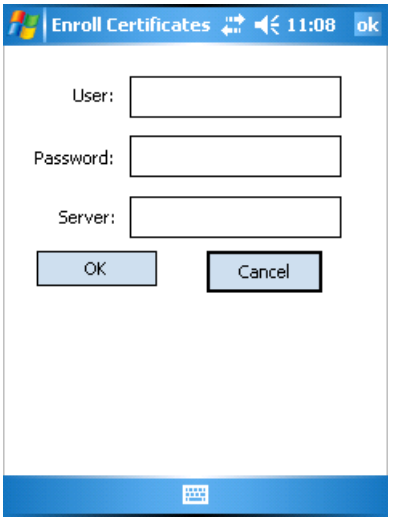
2 Click **Import Root Cert** to install the selected certificate.

To import a user certificate

1. Tap the <<< button next to the **Certificate Path** field to select the user certificate (DER-encoded .cer file without the private key) to import.
2. Tap the <<< button next to the **Key Path** field to select the private key (.pvk file) which corresponds to the user certificate chosen in Step 1.

To import a user certificate from an IAS server

1. Tap **Web Enrollment**.



2. Enter the User, Password, and Server (IP address) to log into the server.
3. Tap **OK**. A dialog box appears asking if you want to load the root certificate.
4. Tap **OK** for yes. The Enrollment Tool message box appears telling you that the certificate has been added.
5. Tap **OK** to close the message box.

Disabling Security

If you choose not to use security with your wireless network, you can disable it on the CN3. Intermec recommends that you always set security in your network.

To disable security

1. Open Intermec Settings.
2. Choose **Communications** > **802.11 Radio** > **Microsoft Security**.
3. For **Network Authentication**, choose **Open**.
4. For **Data Encryption**, choose **Disabled**.
5. Close Intermec Settings.

4 Developing and Installing Applications

Use this chapter to understand the guidelines for developing applications for use on the CN3. This chapter contains these sections:

- Developing Applications for the Computer
- Installing Applications on the Computer
- Freeing Up Virtual Memory for Applications
- Launching an Application Automatically
- Upgrading the System Software

Developing Applications for the Computer

The CN3 runs applications programmed in Microsoft Visual Studio 2005. You can also use Microsoft eMbedded Visual C++ 4.0 to program applications, but some features may not be available. Use this section to understand the hardware and software you need to develop a new application for the computer.

Use the Intermec resource kits to develop new applications to run on the CN3. The Intermec resource kits are a library of C++ and .NET components grouped by functionality that you can use to create applications for the computer. The resource kits are part of the Intermec Developer Library (IDL), and can be downloaded from the Intermec web site at **www.intermec.com/idl**.

You need the following hardware and software components to use the resource kits:

- Pentium desktop, 400 MHz or higher
- Windows 2000 (Service Pack 2 or later) or Windows XP (Home, Professional, or Server)
- For native and managed development, Microsoft Visual Studio 2005
- 128 MB RAM (196 MB recommended)
- 360 MB hard drive space for minimum installation (720 MB for complete)
- CD-ROM drive compatible with multimedia desktop specification
- VGA or higher-resolution monitor (Super VGA recommended)
- Microsoft Mouse or compatible pointing device

Installing Applications on the Computer

There are several ways you can install applications on your mobile computer:

- You can package your application as a cabinet (.cab) file.
- If you have a simple application, you may only need to deliver the .exe file.

- You can copy a directory structure that contains the application, supporting files, DLLs, images, and data files.

Intermec recommends using .cab files to install your applications. The mobile computer uses standard Windows Mobile .cab files and will install third-party .cab files. You can have your .cab files place your application in any of these memory locations on the mobile computer:

- The Object Store or the Flash File Store. The Object Store is a DiskOnChip® flash that looks like a disk. The Flash File Store is an area of storage which is embedded in a section of the system flash memory. This storage is *not* erased during a reset, although it might be erased during the reflashing process. In addition to storing applications and data files, you have the option to store persistent registry information to the Flash File Store region.
- The optional miniSD card. If you are using a miniSD card, this should be the primary location to place application installation files. The miniSD card creates the Storage Card folder on the CN3.
- The non-volatile Flash File Store region of the storage. Use the small non-volatile Flash File Store region to hold .cab files that rebuild the system at clean boot or install applications from a .cab file into the Flash File Store so that they are "ready-to-run" when you perform clean boot. Since the flash in the system has a limited number of write cycles, do not use the Flash File Store for excessive writing.

Files copied to any of these locations are safe when you cold boot the computer as long as the AutoRun system is installed in the appropriate location. You can find information about this system in the *Intermec Developer's Library (IDL) Resource Kit Developer's Guide* which is available from **www.intermec.com/idl**. When you copy a .cab file to the \CabFiles folder, the folder automatically extracts that .cab file on every cold boot.

There are several ways you can install files and applications on the computer:

- SmartSystems console
- ActiveSync
- miniSD card

- FTP server
- Wavelink Avalanche

The following sections explain how to use each one of these processes to install your application on the computer.

Installing Applications Using SmartSystems Console

You can use the SmartSystems console to drag-and-drop Intermec applications onto your mobile computers. The computer ships with the SmartSystems client, which means it is SmartSystems-enabled. The console is part of SmartSystems Foundation, which you can download from **www.intermec.com/SmartSystems**. For help using the console, see the online help.

To use SmartSystems console to install an application

1. Download your application file from the Intermec web site and unzip it on your desktop PC.
2. Double-click the application file to install it. The application file should appear in the Software Vault.
3. From the SmartSystems console in the Software Vault, drag-and-drop the application onto each mobile computer in your network.

Installing Applications Using Microsoft ActiveSync

You can use Microsoft ActiveSync to establish a connection between your PC and the computer. ActiveSync transfers files, synchronizes files, performs remote debugging, and other device management activities. For more information on installing and using ActiveSync, see **"Using Microsoft ActiveSync" on page 43**.

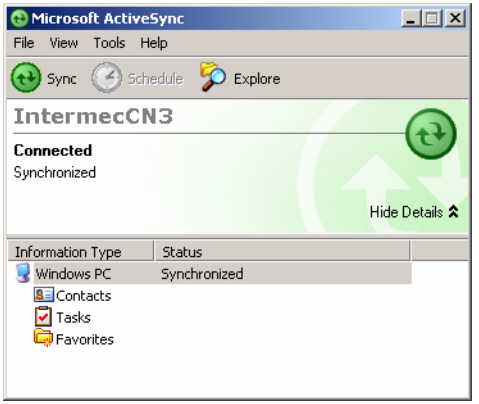
You can have a serial or USB ActiveSync connection to the mobile computer. When you only have a few computers to update, you can copy files using Windows Explorer on a PC.

This procedure assumes that Microsoft ActiveSync is installed on your PC and is up and running.

To install an application on the computer using ActiveSync

1. Connect the CN3 to a PC using a USB cable. You may have to disconnect and then connect the cable to "wake" the connection.

2 Wait for a "Connected" message to appear in the Microsoft ActiveSync application to signal a connection to the mobile computer. If necessary, select **File** > **Get Connected** to initiate a connection.



3 Click **Explore** to open the Mobile Device window that shows the files and folders on the CN3.

4 On your desktop PC, locate the .cab file you want to download to the mobile computer and copy it.

5 From the Mobile Device window, open the **My Windows Mobile-Based Device** folder and navigate to the folder where you want to paste the .cab file.

6 Paste the .cab file into the desired folder.

7 When you are done copying files, clean boot the mobile computer.

8 After the mobile computer is done booting, tap **Start** > **Programs** > **File Explorer** to locate the newly copied files.

9 Tap the .cab files to install them.

Installing Applications Using a Storage Card

If you have a miniSD card for your CN3, it is the best place for you to install applications.

To install applications using the storage card

1. Suspend the CN3 and remove the miniSD card.
2. Insert the miniSD card into a miniSD adapter card and then place it in the storage card reader connected to your PC.
3. Copy your application file to the miniSD card.
4. Remove the miniSD card from the adapter card and insert it into the CN3.
5. On your CN3, navigate to the storage card folder and run your application.

Installing Applications Using the FTP Server

The CN3 has a built-in FTP Server that connects to a network through Ethernet, 802.11 b/g, or WAN (Wireless Access Network). You can use the server to transfer your application file to the computer. Another benefit of using the FTP server is that you can create FTP scripts to automate the process of copying your files to the computer. This option is useful when you need to send files to a large number of computers.

The easiest way to manage the FTP server is to enable the FTP menu within iConnect.

To enable the FTP menu

- Create this DWORD registry key and set it to a value of 1:

```
HKEY_CURRENT_USER\Software\iConnect2\IConnect\Settings\ShowFTPMenu
```

The iFTP menu is available the next time your start iConnect.

To manage the state of the FTP server

- Modify these existing registry keys:

```
HKEY_CURRENT_USER\Software\iConnect2\IConnect\Settings\FtpAutoStart
HKEY_CURRENT_USER\Software\iConnect2\IConnect\Settings\FtpHeartbeat
```

Where 1 = enable and 0 = disable.

Installing Applications Using Wavelink Avalanche

You can use the Wavelink Avalanche device management system to install applications on all of your wireless CN3s. The CN3 ships with the Avalanche Enabler already loaded on it.

Each time the Avalanche Enabler is activated (typically on a reset), the CN3 attempts to connect to the Avalanche Agent. When the CN3 connects to the agent, the agent determines whether an update is available and immediately starts the software upgrade, file transfer, or configuration update.

Note: If you manually activate the Avalanche Enabler on the CN3, you may be prompted for a password when you exit the Avalanche Enabler. The default password is `leave`.

To use Avalanche to remotely manage the CN3

1. Install software packages and updates for the CN3 using the Avalanche Administrative console.
2. Schedule the CN3 updates or manually initiate an update using the Avalanche Administrative console.

For more information on using Wavelink Avalanche, contact your local Intermec representative or visit the Wavelink web site at **www.wavelink.com**.

Freeing Up Virtual Memory for Applications

You can use the InstallSelect application to reduce the amount of virtual memory used by portions of the SmartSystems Platform Bundle (SSPB). Freeing up virtual memory provides you with more space to load and run custom applications. In technical terms, virtual memory allows software to run in a memory address space whose size and addressing are not necessarily tied to the physical memory of the computer.

Note: InstallSelect is designed for use only by administrators, developers, integrators, or Intermec service representatives.

Note: Do not run InstallSelect while using any other applications.

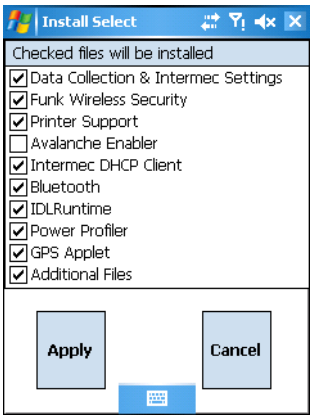
InstallSelect manages the installation of value-added software features of the computer. Removing software features may result in loss of computer functionality or the ability to manage device settings. See "Understanding the InstallSelect Software Components" on page 111 or contact your Intermec service representative for information about each software feature before making changes.

To free up virtual memory, select items from the InstallSelect list that you do not want to install. When you perform a clean boot, the items you selected are not installed. However, you can reinstall any of these SSPB components at any time with InstallSelect. Be sure to back up any related files that you want before you use the InstallSelect application. The InstallSelect application is part of the SSPB and is installed at the factory.

For more information on SSPB, see "Upgrading the System Software" on page 113.

To free up virtual memory

1. Go to **Start** > **Programs** > **File Explorer**.
2. Tap the **Windows** folder.
3. Scroll down to the InstallSelect application and tap the icon ( ). The InstallSelect application appears on the display with a Caution dialog box.
4. Tap **OK** to close the Caution dialog box.



5. Clear the check box of any components you do not want installed after a clean boot.

By default, components already installed on the computer are automatically checked to be installed again after you perform a clean boot.

6 Tap **Apply** to initiate the clean boot and install only the files that are selected.

7 Tap **Yes** to continue with the clean boot. The computer performs a clean boot and restarts with all of the checked components installed.

Understanding the InstallSelect Software Components

Component Name	Description
Data Collection & Intermec Settings	Data collection and Intermec Settings. Also includes on-unit SDK libraries. If you disable this CAB file, you cannot scan or collect data on the device and you cannot use Intermec Settings.
Funk Wireless Security	Intermec security supplicant that provides a wireless security solution with several features that are not supported by Microsoft.
Printer Support	Provides Intermec printer driver support.
Intermec DHCP Client	Provides the Intermec DHCP client application.
Bluetooth	Provides the Intermec Bluetooth application support.
Avalanche Enabler	Enables the client to the Wavelink Device Management solution.

You will see other components available from the InstallSelect application based on the options you selected for your CN3.

Launching An Application Automatically

There are two ways to automatically launch your application when you perform a reset on the computer:

- Make sure your CAB file places a shortcut to your application in the \Windows\StartUp folder.
- Configure the AutoRun program to launch your application.

The computer contains a program called AutoRun.exe which automates operations such as launching other processes. You can configure AutoRun.exe through the AutoRun data file, AutoRun.dat. For compatibility with other Intermec computers, you can place a copy of AutoRun.exe in the same folder as your AutoRun.dat file but it is not required.

To create and install the AutoRun.dat file on your computer

1. Create a folder called System on your CN3.
2. Open the Notepad application on your PC.
3. Write commands for AutoRun.dat using the supported AutoRun script commands.
4. Save the Notepad file as AutoRun.dat.
5. Copy the AutoRun.dat file to the System folder on the CN3. During every boot, the system scans for AutoRun.dat in the System folder.

AutoRun supports the following script commands in AutoRun.dat:

AutoRun Script Commands

Command	Description
EXEC	Launches a specified program and waits for it to finish (up to 10 minutes)
CALL	Processes a specified file of commands and returns.
CHAIN	Processes a specified file of commands and does not return.
RUN	Loads a specified program and executes it.
LOAD	Loads a specified program and executes it.

AutoRun handles quoted file names for the first parameter, which allows you to specify path names or file names that contain white spaces. AutoRun only supports one set of quotes per command.

Upgrading the System Software

When you upgrade your computer, you are updating the operating system (OS) and the SmartSystems Platform Bundle (SSPB) files.

The SSPB files are stored on the DiskOnChip and deliver Intermec Value Add (IVA) functionality such as data collection, configuration, the Intermec wireless security suite, and the SmartSystems™ Foundation. As new features are added to these components, you can upgrade your SSPB files without needing to upgrade the operating system. Alternately, you can choose to upgrade only the operating system if you need new functionality.

There are two ways to upgrade your computer:

- You can upgrade your computer using an storage card. For help, see the next section, **"Upgrading the CN3 Using a miniSD Card."**
- You can upgrade your computer using the SmartSystems Console. For help, see **"Upgrading the CN3 Using the SmartSystems Console" on page 115**.

You need to download the latest upgrade files from the Intermec web site to your desktop PC.

To download the upgrade files

1. Start your web browser and go to the Intermec web site at **www.intermec.com**.
2. Go to **Support** > **Downloads**.
3. Click the link to search the product downloads.
4. Select your computer from the **Downloads** list. The Downloads page displays all of the downloads available for your computer.
5. Download the upgrade file you need. If you want to upgrade both the OS and the SSPB, you will need to download both files.

Upgrading the CN3 Using a miniSD Card

To use a miniSD card to upgrade the computer, you need an SD card reader and a miniSD adapter card formatted as FAT16.

To upgrade the operating system using a miniSD card

1. Insert a miniSD card into a miniSD adapter card and then place it in the storage card reader connected to your PC.
2. Copy all required OS upgrade files to the miniSD card.
3. Remove the miniSD card from the adapter card and insert it into the CN3.
4. Place the CN3 in a dock connected to external power and press the **Reset** button (using a stylus) located in the battery cavity on the back of the CN3. For help, see **"Cold Booting the CN3" on page 124**.
5. Remove the miniSD card when the Installation Complete menu appears.
6. Remove the CN3 from the dock and replace the battery.

To upgrade the SSPB using a miniSD card

1. Insert a miniSD card into a miniSD adapter card and then place it in the storage card reader connected to your PC.
2. Copy all required SSPB upgrade files to the miniSD card.
3. Remove the miniSD card from the adapter card and insert it into the CN3.
4. Using the stylus, press the **Reset** button in the battery cavity on the back of the CN3.
5. Press and hold the **Power** button as you insert the battery back into the CN3.
6. Continue to hold the **Power** button until a Warning message appears on the display.
7. Release the **Power** button, read the message, and press either button on the right side to continue.
8. Perform the screen alignment and wait for the CN3 to load files from the miniSD card.

When the progress is complete, the CN3 warm boots to reset the configuration.

9 Remove the miniSD card and delete the files.

10 Set the date, time, and network communication parameters to reestablish communications with the other devices in the wireless network.

Upgrading the CN3 Using the SmartSystems Console

You can use the SmartSystems console to upgrade the operating system on your computer. The console is part of SmartSystems Foundation and is available from the Intermec web site via the Intermec Developer Library (IDL). Before you can upgrade your computer, you need:

- the SmartSystems Foundation. To download SmartSystems Foundation, go to **www.intermec.com/idl** and open the Device Management page.
- the device upgrade .exe file. This file is available from the Intermec web site at **www.intermec.com**. Go to **Support** > **Downloads**. Make sure the file you select is for your language.

To upgrade the computer using SmartSystems console

1 Install SmartSystems Foundation on your PC and open the SmartSystems console.

2 Make sure the SmartSystems console and the computers are on the same subnet.

3 Make sure your computers are either in a communications dock or charging dock or that power management is disabled.

4 Download the device upgrade .exe file to your desktop PC.

5 Double-click the .exe file on your desktop PC. An InstallShield application starts and walks you through the process of extracting the upgrade files in the default location.

Note: Do not change the default location where InstallShield extracts the files. The SmartSystems console requires that the files be in this location.

6 From the SmartSystems console, locate the device upgrade to install.

7 Drag-and-drop the device upgrade onto each computer you want to upgrade. The SmartSystems console will tell you that it is installing the upgrade on your computer.

Once the upgrade is done downloading to your computer, your computer replaces the operating system and then automatically performs a cold-boot. Progress messages appear on the computer screen.

Note: The SmartSystems console will show your computer as offline *(*note the red stop sign*)* until the computer reboots and reconnects to the system.

5 Troubleshooting and Maintaining the CN3

If you encounter any problems while using the mobile computer, look in this chapter to find a possible solution. You will also find information on routine maintenance. This chapter contains these sections:

- Calling Product Support
- Troubleshooting the CN3
- Resetting the CN3
- Cleaning the CN3

Calling Product Support

If you cannot find the answer to your problem in the "Troubleshooting the Computer" section, you can visit the Intermec technical knowledge base (Knowledge Central) at **intermec.custhelp.com** to review technical information or to request technical support. If you still need help after visiting Knowledge Central, you may need to call Product Support.

To talk to an Intermec Product Support representative, call:

1-800-755-5505

Before you call Intermec Product Support, make sure you have the following information ready:

- Configuration number
- Operating system version
- SmartSystems Platform Bundle (SSPB) version
- If you are using security, know the type (Funk or Microsoft) and the full set of parameters
- Power management settings
- If you are using terminal emulation (TE), know the version and protocol
- If you are not using TE, know the language your custom application was written in and the tools you used to create it

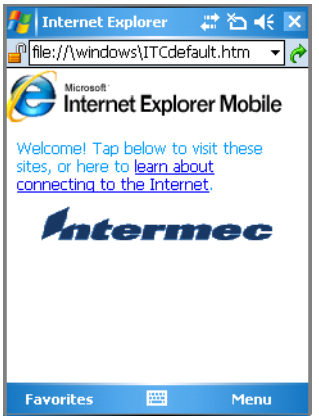
You can find most of the information listed above in Intermec Settings. Consult your application developer for information on your custom application.

To find your configuration number

- Look at the label on the back of the computer.

To find your operating system version

1 Tap **Start** > **Internet Explorer**.



2 Tap the **Intermec** logo. The Intermec page appears and displays the software build information.

Troubleshooting Your CN3

If you send the CN3 in for service, it is your responsibility to save the computer data and configuration. Intermec is responsible only for ensuring that the hardware matches the original configuration when repairing or replacing the computer.

Problems While Configuring the CN3

Problem	Solution
You scan a configuration command, such as Beeper Volume, and you hear three low beeps.	If you are working in Intermec Settings, you cannot scan configuration commands. Exit the application to scan configuration commands.
You scan or enter an option for the Scanner Model configuration command and you hear three low beeps.	You may have scanned or entered a Scanner Model command that does not apply to the type of scanner that you have installed. Try scanning or entering the Scanner Model command again and select an option for the type of device you are using.
You cannot type a character on the keypad or you can only type uppercase or lowercase letters.	You may have locked a modifier key on the keypad.Press the necessary key sequence to unlock the key. For help, see **"Using the Keypad" on page 9**.

Problems While Operating the CN3

Problem	Solution
You press the **Power** button and nothing happens.	• Make sure the backlight is on. • Make sure you have a charged battery that is installed correctly. For help, see "Charging the Battery" on page 4. • The battery may be discharged. Replace the battery with a spare charged battery, or charge the battery. • Perform a warm boot or a cold boot.
The Battery status LED is on.	The battery status LED indicates the following states: • If the battery status LED is a steady green, the battery is more than 95% charged and computer is on a charger. • If the battery status LED is blinking red, then the battery is low. Replace or charge the battery. • If the battery status LED is a steady red, the main battery is on charge.
The computer appears to be locked up and you cannot enter data.	• Press the power key to turn off the computer, then press the power key again to turn it on. • Press and hold the power key ten seconds to warm boot the computer. • Try reloading the firmware. See "Upgrading the System Software" on page 113 . • If the computer does not boot or reset, contact your Intermec representative for help.
You tap the screen and nothing happens.	Align your screen. For help, see "Aligning the Touch Screen" on page 21.

Problems With Wireless Connectivity

Problem	Solution
When you turn on the computer after it was suspended for a while (10 to 15 minutes or longer), it can no longer send or receive messages over the network.	Host may have deactivated or lost current terminal emulation session. In a TCP/IP direct connect network, turn off the "Keep Alive" message from host to maintain the TCP session while the computer is suspended.
The CN3 is connected to the network and you move to a new site to collect data. Your CN3 now shows you are not connected to the network.	Move closer to an access point or to a different location to reestablish communications until you reconnect with the network. Any data collected while out of range is transmitted over the network.

Problems With Wireless Connectivity (continued)

Problem	Solution
The CN3 appears to be connected to the network, but you cannot establish a terminal emulation session with the host computer.	There may be a problem with the host computer, with the connection between the Intermec Application Server and the host computer, or with the connection between the access point and the host computer. Check with network administrator to make sure the host is running and allowing users to login to the system.
The CN3 appears to be connected to the network, but the host computer is not receiving any information from the CN3.	In a UDP Plus network, there may be a problem with the connection between the Intermec Application Server and the host computer. Check with network administrator or see the user's manual for the Intermec Application Server. In a TCP/IP network, there may be a problem with the connection between the access point and the host computer. Check with network administrator or use your access point user's manual.

Problems While Configuring 802.1x Security

Problem	Solution
The CN3 indicates that it is authenticated, but it does not communicate with the host.	Make sure the CN3 IP address, host IP address, subnet mask, default router are configured for network.
The CN3 does not appear to be authenticating and a network connection icon does not appear on the toolbar.	The CN3 may not be communicating with the access point. Make sure the CN3 network name matches the access point network name (SSID). 802.1x security network may not be active. Make sure the server software is properly loaded and configured on the server PC. See server software documentation for help.
A network connection icon appears in the toolbar, but then disappears.	The CN3 may not be communicating with the intended access point. Make sure the CN3 network name matches the access point network name. Default network name is "INTERMEC." Access point may not be communicating with server. Ensure the access point is turned on, properly configured, and has 802.1x security enabled
You are setting up multiple access points in a network, with different SSIDs, and the connection fails.	CN3 does not save WEP key values when changing the SSID. Reenter the WEP key values and apply the network settings. You should now be able to connect.

Problems While Configuring 802.1x Security (continued)

Problem	Solution
You are setting up multiple access points in a network, with different SSIDs, and the connection fails.	The CN3 does not save WEP key values when changing the SSID. Reenter the WEP key value after changing the SSID and save your changes. You should now be able to connect to the different access points.
The CN3 indicates it is not authenticated.	Make sure that: • the User Name and Password parameters on the CN3 must match the user name and password on authentication server. You may need to reenter the password on both the CN3, authentication server. • on your authentication server, the user and group are allowed and the group policy is allowed to log into the server. For help, see the documentation that shipped with your authentication server software. • the IP address and secret key for access point must match the IP address and secret key on the authentication server. You may need to reenter the IP address and secret key on both your access point and authentication server. • the authentication server software is running on the server PC.
You receive a message saying "The server certificate has expired or your system date is incorrect" after you perform a clean boot on the CN3.	Date and time are not saved when you perform a clean boot. Reenter the date and time, and then save your changes.

Problems While Scanning Bar Codes

Problem	Solution
You cannot see a red beam of light from the scanner when you press the **Scan** button and aim the scanner at a bar code label.	• You may be too far away from the bar code label. Try moving closer to the bar code label and scan it again. • You may be scanning the bar code label "straight on." Change the scanning angle and try again. • Move within two feet of a wall to test the effective scan of the scanner. For help scanning bar codes, see "Scanning Bar Codes" on page 22.
The input device attached to the computer does not work well or read bar code labels very quickly.	Set the Scanner Model command to the specific attached input device. Check enabled bar code symbologies and enable only the symbologies being used.

Problems While Scanning Bar Codes (continued)

Problem	Solution
When you release a **Scan** button or handle trigger, the **Good Read** light does not turn off.	The **Good Read** light will remain on if you configure the computer to use continuous/edge triggering. If you configure the computer for level triggering and the **Good Read** light remains on, there may be a problem. Press one of the **Scan** buttons or pull the trigger again without scanning a bar code label. If the light is still on, contact your local Intermec representative.
The scanner will not read the bar code label.	• Aim the scanner beam to cross entire bar code label in one pass. Vary the scanning angle. • Check the quality of the bar code label, Scan a bar code label that you know will scan. Compare the two bar code labels to see if the bar code quality is too low. You may need to replace the label that you cannot scan. • Make sure the bar code symbology is enabled. Use Intermec Settings to check the symbologies. Expand **Data Collection** > **Symbologies** beneath devices listed (scanner, virtual wedge) to check and enable symbologies, then scan the bar code label again. • Make sure the computer application is expecting input from a bar code. You may need to type this information instead.
The scanner does not read the bar code labels quickly, or the scanning beam seems to be faint or obscured.	The scanner window may be dirty. Clean the window with a solution of ammonia and water. Wipe dry. Do not allow abrasive material to touch the window
You scan a valid bar code label to enter data for your application. The data decoded by the scan module does not match the data encoded in the bar code label.	The computer may have decoded the bar code label in a symbology other than the label's actual symbology. Try scanning the bar code label again. Make sure you scan the entire label.

Resetting the CN3

You rarely need to reset the computer. If the computer does not resume after pressing the Power button, or if the computer or an application lock up, you may need to reset the CN3. The CN3 uses the configuration currently saved in flash memory during the boot process. There are three ways to reset the CN3:

- Warm booting the CN3

- Cold booting the CN3
- Clean booting the CN3

Warm Booting the CN3

You may need to perform a warm boot to correct conditions where an application stops responding to the system.

To warm boot the computer

- Press and hold the **Power** button for 10 seconds.

The computer systematically shuts down, restarts, and goes through the initialization process.

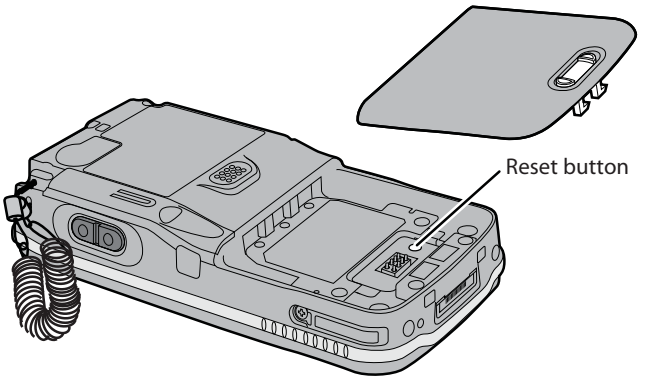
Cold Booting the CN3

In some cases where the computer completely stops responding, it may be necessary to perform a cold boot. Because cold booting may result in data loss, only use this method if all other recovery methods have failed.

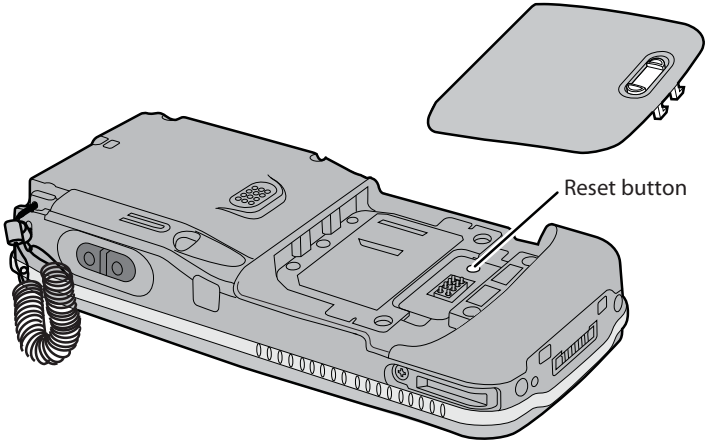
Note: Cold booting the CN3 does not guarantee that cached disk data will be saved, so transactional data may be lost during the reset. All other data is preserved.

To cold boot your CN3

1. Press the **Power** button to suspend the CN3.
2. Remove the battery pack from the CN3.
3. Press the **Reset** button on the back of the CN3.



Locating the Reset button on the CN3



Locating the Reset button on the CN3e

4 Press and hold the **Power** button as you insert the battery pack back into the CN3.

Clean Booting the Computer

When you clean boot the CN3, it loads only those files and programs that are absolutely required by the operating system. Use the clean boot to troubleshoot the CN3 by getting it up and running so that you can perform diagnostic tests to determine which elements of the normal boot process are causing problems.

Caution

The clean boot process will erase the memory in the mobile computer, including all applications and data files found in the object store.

Caution

To preserve application programs through a clean boot, you must store them in the Flash File Store.

To clean boot the computer

1 Press the **Power** button to suspend the CN3.

2 Remove the battery pack from the back of the CN3.

3 With a stylus, press the **Reset** button on the battery cavity.

4 Press and hold the **Power** button as you insert the battery back into the CN3.

5 Continue to hold the **Power** button until a Warning message appears on the display.

6 Release the **Power** button, read the message, and press either button on the right side to continue.

7 Perform the screen alignment and wait for the CN3 to load files from the miniSD card.

Cleaning the CN3

To keep the CN3 in good working order, you may need to clean the imager window, color camera window, and the touch screen. Clean the windows and the touch screen as often as needed for the environment in which you are using the CN3. To clean the CN3, use a solution of ammonia and water.

There are no user-serviceable parts inside the CN3. Opening the CN3 will void the warranty and may cause damage to the internal components.

To clean the imager window, camera window, and touch screen

1 Press the **Power** button to suspend the CN3.

2 Dip a clean cloth towel in the ammonia solution and wring out the excess.

3 Wipe off the imager window, camera lens, and flash area. Do not allow any abrasive material to touch these surfaces.

4 Wipe dry.

A Specifications

Physical and Environmental Specifications

CN3 Physical Dimensions (excluding overmold)

Length:	16.0 cm (6.3 in)
Width:	8.1 cm (3.2 in)
Height:	3.3 cm (1.3 in) with standard battery
Weight:	Non-WAN units: 14 oz WAN units w/standard battery: 15 to 16 oz WAN units w/extended battery: 16 to 17 oz

CN3e Physical Dimensions (excluding overmold)

Length:	19.5 cm (7.7 in)
Width:	8.1 cm (3.2 in)
Height:	3.3 cm (1.3 in) with standard battery
Weight:	Non-WAN units: 17 to 18 oz WAN units w/extended battery: 18 to 19 oz

Hardware

Microprocessor:	Intel XScale PXA270
Application processor:	520 MHz RAM
Memory:	128 MB RAM
Persistent storage:	128 MB NAND flash, provides onboard non-volatile storage
Removable storage:	miniSD card slot, user-accessible
Keypad:	numeric, QWERTY, CN3e 10-key, CN3e numeric
Scanner options:	EA11, EA11HD scan engine, color camera
Bluetooth QD ID:	**B013037**

Operating System
Microsoft Windows Mobile 5.0

Standard Communications
USB host, USB client, Bluetooth, 802.11b/g, GPRS, CDMA (CN3 only), GPS

Touchscreen Specifications
Transflective TFT; QVGA color with touch panel; 240 x 320 pixels; 8.9 cm (3.5 in) diagonal active area; 5-level LED backlight control with settings

Electrical Specifications
External charge power: 5 V +/- 5% @3.5 A max (18 W max)

Environmental

Operating temperature:	-10° to 50°C (14° to 122°F)
Storage temperature:	-20° to 70°C (-13° to 158°F)
Humidity:	5% to 95% non-condensing
Rain and dust resistance:	IP54 compliant
Drop specifications:	Multiple 1.5 m (5 ft) drops to steel or concrete

Power Specifications

Battery type:	Rechargeable Lithium-Ion (Li-ion) batteries: AB8: 3.7 VDC, 2.2 Ah AB9: 3.7 VDC, 4.0 Ah
Recharge time:	4 hours or less
Battery capacity:	AB8: 8 Watt-hours AB9: 14 Watt-hours
Backup battery:	Super capacitor supplies 5 minutes bridge time

Wireless LAN

Standards compliant:	IEEE 802.11g (2.4 GHz, OFDM) IEEE 802.11 b (2.4 GHz, DSSS)
Data rates:	Up to 54 Mbps for 802.11g Up to 11 Mbps for 802.11b
Radio power output:	100 mW
Security:	WEP, WPA, 802.11i, 802.1x (EAP-TLS, TTLS, LEAP, PEAP, EAP-FAST)
Certifications:	Wi-Fi, WPA, WPA2, Cisco Compatible Extensions

Bar Code Symbologies

Australian Post, British Post, Codabar, Codablock A, Codablock F, Code 11, Code 2 of 5, Code 39, Code 93, Code 93i, Code 128, DataMatrix, Dutch Post, ISBT 128, Interleaved 2 of 5, Macro 2 of 5, Matrix 2 of 5, Maxicode, Micro PDF417, MSI, PDF417, Planet, Plessey, Postnet, QR Code, RSS 14, RSS Expanded, RSS Limited, Telepen, TLC39, KUCC-EAN Composite Code, UPC/EAN

Regulatory Approvals

UL and cUL Listed, UL60950 and UL 1604 and CSA 22.2 No. 157, FCC Part 15, TUV, CE mark

Scanner Reading Distances

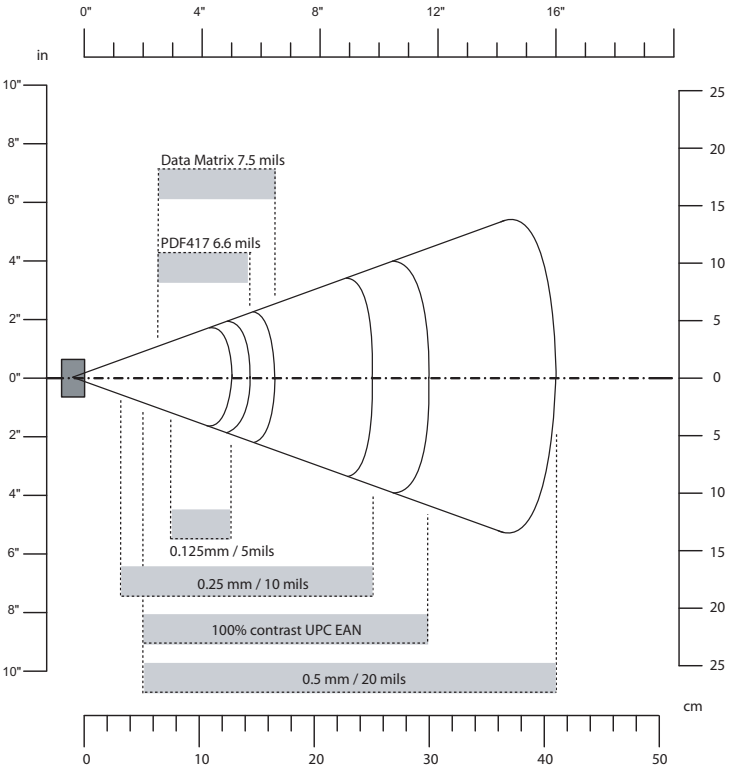
Typical reading distances are done in an office environment using office lights (4 lux). Minimum distances are measured in the dark (0 lux). Both reading distances are provided in respective scan engine integration guides. Contact your local Intermec representative for more information.

Below are minimum standard reading distances for the CN3 and CN3e built with integrated scan engines. When correctly mounted, and exit window reduces reading distances by about 4% for all scan engines.

EA11 Standard Minimum Reading Distances

Symbology	Density	Minimum Distance	Maximum Distance
Code 39	0.125 mm (5 mil) 0.20 mm (8 mil) 0.25 mm (10 mil) 0.50 mm (20 mil)	7.26 cm (2.86 in) 3.96 cm (1.56 in) 3.45 cm (1.36 in) 4.98 cm (1.96 in)	12.09 cm (4.76 in) 20.98 cm (8.26 in) 25.04 cm (9.86 in) 40.28 cm (15.86 in)
UPC/EAN	0.33 mm (13 mils)	4.98 cm (1.96 in)	29.62 cm (11.66 in)
Data Matrix	0.191 mm (7.5 mils) 0.254 mm (10 mils) 0.381 mm (15 mils)	3.71 cm (2.46 in) 5.98 cm (2.35 in) *	16.41 cm (6.46 in) 20.73 cm (8.16 in) 27.58 cm (10.86 in)
PDF417	0.168 mm (6.6 mils) 0.254 mm (10 mils) 0.381 mm (15 mils)	6.25 cm (2.46 in) 4.47 cm (1.76 in) 4.98 cm (1.96 in)	13.87 cm (5.46 in) 21.74 cm (8.56 in) 33.43 cm (13.16 in)

* Minimum distance depends on symbology length and scan angle



EA11 Standard Minimum Reading Distances With 0.04 Inch Setbacks

Accessories

All of the accessories listed below work for both the CN3 and CN3e models unless otherwise noted.

AC14 Quad Battery Charger (P/N 852-065-001)

Use the quad battery charger to charge up to four CN3 battery packs.

AD10 Single Dock (P/N 871-025-001)

Use the single dock to hold a CN3 with its battery installed, charge a spare battery pack, charge the main battery pack, and provide power to the CN3. The dock has USB host and client connectors. Optional modules are available to convert the USB host to Ethernet or to a landline modem.

AD11 Multidock (P/N 871-026-001)

Use the multidock to hold up to four CN3s with batteries installed. The multidock charges the batteries and provides power and Ethernet connections to each CN3.

AD12 Charge-Only Multidock (P/N 875-026-002)

Use the charge-only multidock to hold up to four CN3s with batteries installed, charge batteries, and provide power to CN3s.

AV6 Vehicle Dock (P/N 871-027-001)

Use the vehicle dock to hold and charge the CN3 while using it on a vehicle.

AV9 Vehicle Dock (P/N 871-027-101)

Use the vehicle dock to hold and charge the CN3e while using it on a vehicle.

AR1 Magnetic Card Reader (P/N 850-557-001)

The magnetic card reader provides magnetic stripe reading capability to the CN3.

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CN3 Series Mobile Computer User's Manual

P/N 935-003-006